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ORNITHOLOGICAL.
& OTHER ODDITIES

BY THE SAME AUTHOR

FANCY PHEASANTS.

FANCY WATERFOWL.

HOW TO KNOW THE INDIAN
DUCKS.

HOW TO KNOW THE INDIAN
WADERS.

THE BIRDS OF CALCUTTA.

GARDEN AND AVIARY BIRDS
OF INDIA, &c. &c.



Copied at *London Museum*
HENPRICH'S GULL (p. 230)
 From the first specimens received at the Zoo



Copied at *H. P. Davies*
JAPANESE BANTAMS (p. 186)
 A contrast to their ancestors the Red Jungle fowl

ORNITHOLOGICAL & OTHER ODDITIES

BY FRANK FINN, B.A., F.Z.S.
LATE DEPUTY SUPERINTENDENT OF
THE INDIAN MUSEUM, CALCUTTA
WITH FIFTY-SIX ILLUSTRATIONS
REPRODUCED FROM PHOTOGRAPHS

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TO
Dr. P. CHALMERS MITCHELL, F.R.S.
SECRETARY TO THE ZOOLOGICAL SOCIETY
OF LONDON
IN GRATEFUL ACKNOWLEDGMENT OF
MUCH KINDNESS
I DEDICATE THIS BOOK

PREFATORY NOTE

It has always been my belief that "the man in the street" has more interest in natural history, as in other intellectual matters, than eclectics would credit him with; and hence I venture to offer to the public this series of chapters on various topics connected with animal—especially bird—life, which I have had reason to suppose would prove interesting to the general reader.

At the same time I have embodied therein the outcome of long observation, so that naturalists themselves may perhaps find somewhat to interest them in the volume, at any rate if they agree with me that the life-history of an animal is at least as worthy a subject for serious scientific study as its structure, whether internal or external.

My thanks are due to the editors of *Country Life*, *The County Gentleman*, *The Daily Express*, *Animal Life*, *The Countryside*, *Cage Birds*, *The*

‘Prefatory Note

Field, The Saturday Review, The Spectator, The Animal World, for their kindness in allowing me to reproduce in book-form various articles which originally appeared in their columns.

FRANK FIN

LONDON, 1907.

CONTENTS

	PAGE
THE STUDY OF SEXUAL SELECTION	1
THE COURTING OF BIRDS	7
HYBRID BIRDS	13
LOVE AMONG THE BIRDS	23
SOME INDIAN CUCKOOS	33
THE TOILET OF BIRDS	41
THE SENSE OF SMELL IN BIRDS	48
MIMICRY IN BIRDS	54
THE GOLDFINCH ABROAD	70
BIRDS IN THE MOULT	77
THE RAVEN OF THE PAMPAS	84
FOREIGN CAGE-BIRDS AT HOME	92
COCK ROBIN'S COUNTERFEITS	102
BIRDS THAT TALK AND MIMIC	110
"OSPREY" FARMING	117
SOME LONDON BIRDS	123
SOME EXOTIC OWLS	130
A CALCUTTA BIRD COLONY	139
HOW BIRDS FIGHT	146
AN HONEST CUCKOO	154
FEATHERED STOWAWAYS	161
NIGHT-JARS AT HOME AND ABROAD	167
FOREIGN BIRDS AT LARGE IN ENGLAND	173

Contents

INDIAN GAME-BIRDS AND WILDFOWL . . .	
JAPANESE AVICULTURE	
THE KING OF THE TITS	
THE CONGREGATION OF BIRDS	
THE DOMESTIC LIFE OF THE DABCHICK . .	
BLUSHING BIRDS	
BIRDS FOR LONDON AVIARIES	
THE SCAVENGERS AT DHAPPA	
THE BIRDS OF AN EASTERN VOYAGE . . .	
SOME EAST AFRICAN PETS	
A PLEA FOR PRODIGIES	
THE ZOOLOGY OF HERODOTUS	
THE TREATMENT OF ANIMALS IN INDIA . .	
PARK ANIMALS FOR LONDON	
MONKEYS I HAVE MET	
INDEX	

ILLUSTRATIONS

JAPANESE BANTAMS. A CONTRAST TO THEIR ANCESTORS THE RED JUNGLE-FOWL . . .	<i>Frontispiece</i>
<i>From a photograph by W. P. Dando.</i>	
HEMPRICH'S GULL. FROM THE FIRST SPECIMENS RECEIVED AT THE ZOO	„
<i>From a photograph by Lewis Medland.</i>	
MANDARIN DRAKE. SHOWING PLUMAGE WHEN IN REPOSE	<i>To face p. 8</i>
<i>From a photograph by W. P. Dando.</i>	
MANDARIN DRAKE. DIFFERENCE IN PLUMAGE UNDER EMOTION	„ 8
<i>From a photograph by W. P. Dando.</i>	
MALE HYBRID BETWEEN AMHERST AND GOLDEN PHEASANTS. THESE HYBRIDS ARE QUITE FERTILE <i>inter se</i> OR WITH THE PARENTS . . .	„ 16
<i>From a photograph by W. P. Dando.</i>	
SAND-GROUSE. THE LONG WINGS OF THESE BIRDS AT ONCE DISTINGUISH THEM FROM TRUE GROUSE	„ 16
<i>From a photograph by Lewis Medland.</i>	
GREEN PEACOCK. SHOWING THE SPEAR-SHAPED CREST AND SCALE-LIKE FEATHERING . . .	„ 28
<i>From a photograph by W. P. Dando.</i>	
“JAPAN” PEAHEN. THE MALE OF THIS VARIETY IS LIKE THE COMMON PEACOCK, BUT WITH BLACK WINGS	„ 28
<i>From a photograph by W. P. Dando.</i>	

Illustrations

THE SKYLARK'S COURTSHIP. ALTHOUGH HE USUALLY SINGS ON THE WING, THE SKYLARK GOES COURTING ON FOOT	<i>To face p. 30</i>
<i>From a drawing.</i>	
BHIMRAJ OR RACKET-TAILED DRONGO. SHOWING THE TWO LONG "RACKET" FEATHERS IN THE TAIL	" 34
<i>From a photograph by Lewis Medland.</i>	
FEMALE KOEL. THE MALE OF THIS COMMON INDIAN CUCKOO IS RAVEN-BLACK	" 34
<i>From a photograph by Lewis Medland.</i>	
SHIKRA HAWK. THE UPPER SIDE OF THE TAIL IS MARKED AS IN THE HAWK-CUCKOO	" 36
<i>From a drawing, by permission of Messrs. Hutchinson & Co.</i>	
BRAIN-FEVER BIRD. THE EXACT CORRESPON- DENCE OF THIS MIMIC WITH ITS MODEL IS NOTABLE EVEN IN BLACK AND WHITE	" 36
<i>From a drawing, by permission of Messrs. Hutchinson & Co.</i>	
BOURU FRIAR-BIRD. THE MODEL OF THE MIMICKING BOURU ORIOLE	" 54
<i>From a drawing, by permission of Messrs. Hutchinson & Co.</i>	
BOURU ORIOLE. THIS MIMICKING SPECIES SHOULD BE COMPARED WITH THE MORE NORMAL BLACK-HEADED ONE	" 54
<i>From a drawing, by permission of Messrs. Hutchinson & Co.</i>	
KING-CROW. A COMMON OBJECT ON THE TELE- GRAPH WIRES IN INDIA	" 59
<i>From a drawing, by permission of Messrs. Hutchinson & Co.</i>	
INDIAN DRONGO-CUCKOO. THE TAIL IN THIS MIMIC IS NOT SO WELL FORKED AS IN THE MODEL	" 56
<i>From a drawing, by permission of Messrs. Hutchinson & Co.</i>	

Illustrations

SOUTHERN SKUA. SHOWING THE EAGLE-LIKE PLUMAGE OF THIS PREDATORY ANTARCTIC GULL	To face p. 62
<i>From a photograph by W. P. Dando.</i>	
INDIAN CRIMSON TRAGOPAN. THESE TRAGOPANS ARE OFTEN MISCALLED "ARGUS" PHEASANTS	62
<i>From a photograph by W. P. Dando.</i>	
INDIAN BLACK-HEADED ORIOLE. THIS BEAUTI- FUL BIRD IS ONE OF THE COMMONEST SPECIES IN INDIA	66
<i>From a drawing, by permission of Messrs. Hutchinson & Co.</i>	
BRAZILIAN TROUPIAL. A COMMON SOUTH AMERI- CAN BIRD, COLOURED MUCH LIKE THE INDIAN BLACK-HEADED ORIOLE	66
<i>From a drawing, by permission of Messrs. Hutchinson & Co.</i>	
WINKING OWL. AS A MATTER OF FACT, THIS SPECIES WINKS VERY LITTLE	80
<i>From a photograph by W. P. Dando.</i>	
A MOULTING PENGUIN. PENGUINS OF THIS (THE SOUTH AFRICAN) SPECIES HAVE BRED AT THE ZOO	80
<i>From a photograph by W. S. Berridge.</i>	
CARACARAS. NORMAL FORM AND PALE VARIETY	86
<i>From a photograph by W. P. Dando.</i>	
ROOKS COURTING. OUR ROOKS APPEAR NOT TO INTERFERE IN EACH OTHER'S MATRIMONIAL AFFAIRS AS INDIAN CROWS DO	88
<i>From a drawing by Miss W. Austen.</i>	
PIPING CROW. THOUGH CALLED MAGPIE IN AUSTRALIA, THIS IS OBVIOUSLY A VERY DIFFERENT BIRD	106
<i>From a photograph by W. P. Dando.</i>	

Illustrations

NEW ZEALAND ROBIN. SOUTH ISLAND SPECIES ; THE RARE NORTH ISLAND BIRD IS DARKER . <i>To face p.</i>	106
<i>From a photograph by W. P. Dando.</i>	
HILL-MYNAH. THIS IS THE SPECIES BEST KNOWN AS A TALKER	114
<i>From a photograph by W. S. Berridge.</i>	
HOUSE-MYNAH. THIS MYNAH IS A FAMILIAR BIRD EVEN ON THE ROADS IN INDIA . . .	114
<i>From a photograph by W. P. Dando.</i>	
AMERICAN BITTERN. THIS SPECIES IS PLAINER AND BROWNER THAN OURS	118
<i>From a photograph by W. P. Dando.</i>	
LARGE EGRET. BEARING ITS TRAIN OF "OSPREY" PLUMES	118
<i>From a photograph by W. P. Dando.</i>	
HERRING-GULLS. TWO MALES ARE HERE PAYING ADDRESSES TO ONE FEMALE, SHOWING TWO DIFFERENT ATTITUDES	128
<i>From a drawing by Miss W. Austen.</i>	
MILKY EAGLE-OWL. THIS SPECIES HAS DARK EYES, UNLIKE THE AMBER-EYED EAGLE-OWL OF EUROPE	130
<i>From a photograph by W. P. Dando.</i>	
PEL'S FISH-OWL. ONE OF THE FEW BARE- LEGGED OWLS	130
<i>From a photograph by W. P. Dando.</i>	
AUSTRALIAN BARN-OWL IN ATTITUDE OF DE- FIANCE. THE PAINTED SNIPE ASSUMES THE SAME ATTITUDE WHEN MUCH ALARMED . .	134
<i>From a photograph by W. P. Dando.</i>	
CHAJA OR CRESTED SCREAMER AND YOUNG. THE WING-SPURS ARE NOT VISIBLE WHEN THE WINGS ARE CLOSED, AS HERE . . .	134
<i>From a photograph by W. S. Berridge.</i>	

Illustrations.

THE BIRD COLONY AT THE CALCUTTA ZOO. ISLAND SUPPORTING CLUMP OF PANDANUS . <i>To face p.</i>	140
<i>From a photograph.</i>	
THE BIRD COLONY AT THE CALCUTTA ZOO. ONE END OF THE LARGER ISLAND TENANTED BY THE BIRDS, SHOWING TREE KILLED BY THEIR DROPPINGS	140
<i>From a photograph.</i>	
THE BIRD COLONY AT THE CALCUTTA ZOO. TWO VIEWS OF THE LARGER ISLAND ; THE HERONS ARE VISIBLE AS WHITE DOTS	144
<i>From a photograph.</i>	
MOREPORK. "A WOODEN EXPRESSION"	172
<i>From a photograph by W. P. Dando.</i>	
MOREPORK. "AN OPEN COUNTENANCE"	172
<i>From a photograph by W. S. Berridge.</i>	
RED JUNGLE-FOWL. THE COLOUR IS JUST LIKE THAT OF "BLACK-RED" TAME FOWLS	178
<i>From a photograph by W. P. Dando.</i>	
GREY JUNGLE-FOWL. IN THE HEN OF THIS BIRD THE BREAST-FEATHERS ARE WHITE WITH BLACK EDGES	178
<i>From a photograph by W. P. Dando.</i>	
COURTSHIP OF ROBIN. IT IS ONLY WHEN BREEDING THAT EVEN THE TWO SEXES OF THE ROBIN ASSOCIATE	200
<i>From a drawing.</i>	
INDIAN PIGMY GOOSE. SENT TO THE ZOO FOR THE FIRST TIME BY THE AUTHOR	236
<i>From a photograph by Lewis Medland.</i>	
COCK MONAUL. THE INTENSE LUSTRE OF THE PLUMAGE IS APPRECIABLE EVEN IN A PHOTO- GRAPH	236
<i>From a photograph by W. P. Dando.</i>	

Illustrations

SACRED IBIS	To face p. 256
<i>From a photograph by W. P. Dando.</i>	
GLOSSY IBIS. "QUALIA DEMENS ÆGYPTUS COLUIT"	" 256
<i>From a photograph by W. S. Berridge.</i>	
SERVAL. THIS CAT HAS THE LEGS LONG AS WELL AS THE EARS	" 246
<i>From a photograph by W. P. Dando.</i>	
JAPANESE MONKEYS. FATHER, MOTHER, AND THEIR CHILD BORN IN ENGLAND	" 246
<i>From a photograph by W. S. Berridge.</i>	
ORANG-UTAN. "AN INDIVIDUAL IN EASY CIR- CUMSTANCES"	" 280
<i>From a photograph by W. P. Dando.</i>	
ORANG-UTAN. "TO BE OR NOT TO BE, THAT IS THE QUESTION"	" 280
<i>From a photograph by W. P. Dando.</i>	
ORANG-UTAN. "ATTENTION"	" 282
<i>From a photograph by W. P. Dando.</i>	
ORANG-UTAN. "DISPUTATION"	" 282
<i>From a photograph by W. P. Dando.</i>	
ORANG-UTAN. "AM I A MAN AND A BROTHER?"	" 284
<i>From a photograph by W. P. Dando.</i>	
ORANG-UTAN. "OBJURGATION"	" 284
<i>From a photograph by W. P. Dando.</i>	

ORNITHOLOGICAL
& OTHER ODDITIES

ORNITHOLOGICAL & OTHER ODDITIES

THE STUDY OF SEXUAL SELECTION

ONE of the most interesting portions of Darwin's great work is that which deals with the question of sexual selection in animals, for there is something peculiarly fascinating in a theory which credits the lower orders of creation with the power of individual attachment and the love of beauty on which we human beings pride ourselves. But, of late years especially, there have been many objections to the theory, and it can hardly be said to have a very firm hold on the minds of naturalists, especially of those who make a special study of wild life.

Personally, I am strongly inclined to believe that sexual selection will ultimately be justified as a theory, although I admit there are many difficulties to be overcome. I am speaking with particular reference to birds, which class

Ornithological and Other Oddities

of animals has always been a most important one in the present connection, and always finds so many observers that evidence in its case is particularly easy to obtain.

One cannot observe or read about the habits of birds very much without finding out that, whatever may be the value of beauty, strength counts for a great deal. Male birds constantly fight for their mates, and the beaten individual, if not killed, is at any rate kept at a distance by his successful rival, so that, if he be really more beautiful, his beauty is not necessarily of much service to him. I was particularly impressed by this about a couple of years ago, when I frequently watched the semi-domesticated mallards in Regent's Park in the pairing season. These birds varied a good deal in colour; in some the rich chocolate breast was wanting, and others had even a slate-coloured head instead of the normal brilliant green. Yet I found these "off-coloured" birds could succeed in getting and keeping mates when correctly-dressed drakes pined in lonely bachelorhood; one grey-breasted bird had even been able to indulge in bigamy. That strength ruled here was obvious from the way in which the wedded birds drove away their unmated rivals, a proceeding in which their wives most thoroughly sympathised, as their gestures plainly showed.

The Study of Sexual Selection

Evidently beauty does not count for much with the park duck, and the same seems to be the case with the fowl. As a boy, I often used to visit a yard wherein was a very varied assortment of fowls. Among these was one very handsome cock, of the typical black and red colouring of the wild bird, and very fully "furnished" in the matter of hackle and sickle feathers. Yet the hens held him in no great account, while the master of the yard, a big black bird, with much Spanish blood, provided with a huge pair of spurs, was so admired that he was always attended by some little bantam hens, although they might have had diminutive husbands of their own class.

It must be remembered, however, that these ducks and fowls had an unnaturally wide choice. In nature varieties are rare, and the competing suitors are likely to be all very much alike; this makes matters very difficult for the observer, who may easily pass over small differences which are plain enough to the eyes of the hen birds.

This being so, experiment offers a better mode of solving the problem than ordinary observation, and is not difficult to carry out, provided a proper choice of subjects be made. What one needs is birds which are not domesticated, but display naturally sufficient difference in the plumage of the males to be readily

Ornithological and Other Oddities

appreciated by a human observer. Such are not difficult to procure, and in order to test feminine preference all one has to do is to confine them in such a way that, while the males cannot get at each other to fight, the hen may be able to declare her preference by associating with the suitor she favours. In the case of large birds, the trio might be confined in an enclosure, the two males each with a wing clipped, and separated by a fence, while the hen could be allowed power of flight, so as to visit either compartment.

With small birds a three-compartment cage, with wire divisions, is all that is needed, and in such a cage I tried, some years ago, some experiments with avadavats (*Sporæginthus amandava*). In these little finches, as many of my readers know, the male in breeding plumage is red with white spots, and the hen brown. The red varies in intensity even in full-plumaged birds, and I submitted to the hen first of all two male birds, one of a coppery and the other of a rich scarlet tint. In no long time she had made her choice of the latter bird; the other, I am sorry to say, very soon died; and, as he had appeared perfectly healthy, I fear grief was accountable for his end—a warning to future experimenters to remove the rejected suitor as early as possible. In the present

The Study of Sexual Selection

case I took away the favoured bird, and put in the side compartments he and his rival had occupied two other cocks, which differed in a similar way, though not to the same extent. Again the hen kept at the side of the rich red specimen, so, deeming I knew her views about the correct colour for an avadavat, I took her away too, and tried a second hen with these two males. This was an unusually big bird, and a very independent one, for she would not make up her mind at all; and ultimately I released all three without having gained any result.

Subsequently I made another experiment with linnets. In this case all three were allowed to fly in a big aviary-cage together, a method which, as may be gathered from what I have said above, I do not recommend. In this case, however, the handsomest cock, which showed much richer red on the breast, had a crippled foot, and proved, as I had expected, to be in fear of the other; nevertheless the hen mated with him. It must be said, in justice to the duller bird, that he did not press the advantage his soundness gave him, but with a less gentle bird than the linnet this would probably have happened.

In cases where there is no obvious natural difference, one might be made by staining some portion of one bird's plumage, or clipping its

Ornithological and Other Oddities

ornamental feathering ; but most people will not care to disfigure their birds, and it is usually possible to find enough difference occurring naturally in birds kept in confinement and known individually.

I ought to say that the idea of experimenting in this way was the late Professor Moseley's, but I am, I believe, the only person who has actually made any experiments, and I think that, few though these were, they do show that the method is a workable one. The positive results do not amount to very much ; but if further experiments should confirm them, we should at least know that some hen birds like a handsome mate better than a dull-coloured one.

Whether the right of the strongest ever fails to be upheld is a matter more for outdoor observation, and we must in any case remember that a wild hen bird's inclinations cannot be forced.

THE COURTING OF BIRDS

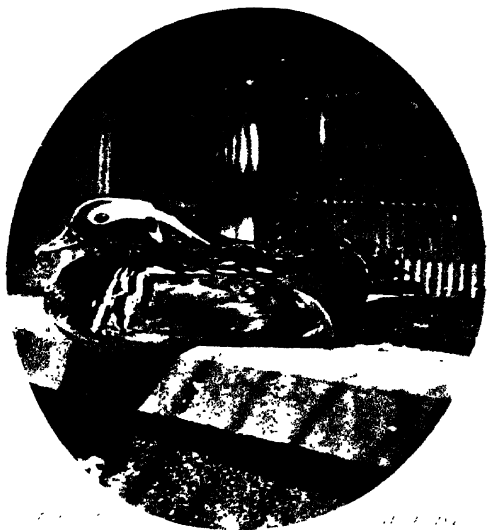
FEW subjects in ornithology are more interesting than the actions of birds during courtship, and much remains to be learnt about their meaning, for the explanation of Darwin, that these extraordinary antics of the male birds, and the beauties thereby displayed, are destined to please the hens, is far from being universally accepted. Many writers seem to find a difficulty in imagining that the female sex among birds is sufficiently endowed mentally to possess the requisite æsthetic sense, and, indeed, evidence that female birds do consistently prefer the more beautiful males, or even that they are pleased by the display of the latter, is not very abundant. At the same time, it is within the power of every one to observe that they can, and do, exercise choice; as to what determines that choice information can only be gained by experiment, and now and then by a fortunate observation.

That male birds which possess some special piece of ornament sedulously display the same before the female is without doubt; but then they also "show off" when angry, and the hens

Ornithological and Other Oddities

may assume similar positions. Take, for example, the gorgeous males of the gold and Amherst pheasants (*Chrysolophus pictus* and *C. amherstiae*). Here the male's most especial decoration is his moveable ruff, and this is expanded and brought round to the side on which he happens to find the hen. She will probably run round to the other side, when her lord promptly twists round his ruff, so that she cannot escape from the sight of it. At the time of display these ruffed pheasants also slant themselves over like the common pheasant, and this they also do when wishing to fight, the hens as well as the cocks, although the former have no ruff to display.

Another specially adorned bird is the Mandarin drake (*Aex galericulata*), whose extravagant decorations and extraordinary contrasts of colour seem almost incredible in a natural species. He differs from all other ducks, even his near ally the Summer or Carolina duck (*Aex sponsa*), in the chestnut hackles on his neck and the similarly coloured fan-feather in the wings. Accordingly, when showing off, he curves his neck back like a fantail pigeon, and by slightly opening and inclining his wings brings his fans into an upright position, at the same time lifting his bushy crest as high as it will go. In this case, again, the plainly coloured female often assumes much



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MANDARIN DRAKE
Showing plumage when in repose



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MANDARIN DRAKE
Difference in plumage under emotion

The Courting of Birds

the same attitude, although she has no hackle or fans to give her an excuse.

The ruff (*Pavoncella pugnax*) makes the best possible use of his upper and breast plumes by expanding them to the utmost and bending down his head till his bill almost touches the ground ; this is an exaggeration of his fighting position, in which the head is merely lowered ; and his little consort, the reeve, who is as pugnacious in her way as he is, shows her belligerent feelings in the same way, in spite of her lack of feathery embellishment.

No bird is more celebrated for its display than the peacock, but it is not generally known that this ostentatious disposition is not confined to the adult male in full pride of plumage, but also occurs under other circumstances. The young peacock will show off in the orthodox position long before he has a vestige of the train, and the display may be given even by the hen. Most remarkable of all, I have seen a peachick not larger than a fowl throw itself into full show position when startled by a cat passing near it. So with the turkey ; every one knows the bristling feathers, erected fan-like tail, and drooping wings of this most bumptious of birds ; but any emotion, angry as well as amorous, will throw him into this position, and his ordinarily meek spouse will assume it when

Ornithological and Other Oddities

she is bent on aggression. Moreover, Audubon found that old turkey-hens in the wild state would respond to the gobbler's advances by displaying themselves in imitation of him. Yet the hen turkey cannot compare in brilliancy of plumage with the cock, although she bears a general resemblance to him. Facts like these may be explained in two ways: Either the characteristic display-attitude has been acquired by the male in order to display his beauty, and afterwards utilised for the expression of other than amorous emotions (being also transferred to the female by inheritance, just as the inordinate pugnacity of fighting cocks has been, as breeders of the old English Game and Indian Aseel know to their cost), or this so-called display is really the means the species possesses of showing its emotions generally, and has merely been taken advantage of by sexual selection, if such a process exists.

This latter view is rendered probable by the fact that sometimes two nearly-allied species will display in the same way, although not equally decorated. Thus, the rearing up and bending down of the head, so frequently practised by the mallard and his domestic descendants, seems admirably adapted for showing off the plushy green head, white collar, and deep bay breast of the drake; but when we find the same

The Courting of Birds

display made by the plainly-coloured male of the Indian spotted-billed duck (*Anas pæcilorhyncha*), which has no such beauties to show, we seem to be taken back to a period in the history of these ducks when both had nothing to show off, but yet had this characteristic way of expressing their emotions.

An analogous case is found in the vibrating of the tail in certain snakes. In the case of the rattlesnakes, this action of course sounds the rattle, but an analogous quivering of the tail is found in the allied vipers of the genus *Trimeresurus*, which have nothing in the shape of a rattle. Here a previously-existing gesture has come in very conveniently for the utilisation of a new organ.

I must admit that in this case one would expect the Carolina drake to show off like his ally the Mandarin; but then these two lovely ducks, although undoubtedly allied, are not such near relatives as the mallard and spotted-bill, or the gold and Amherst pheasants, so that it is quite possible for them to have had different methods of displaying long before the drakes acquired their peculiar decorations. The species certainly inhabit widely different countries, the one belonging to Eastern Asia and the other to North America, and they are notoriously unwilling to interbreed, although ducks, as a rule,

Ornithological and Other Oddities

are peculiarly prone to hybridism, especially in captivity.

Whatever the cause of the display, it is difficult nowadays to see how it affects the female. Generally, she seems to be supremely indifferent to it, and one may often see the extravagant demonstrations of Philip Sparrow cut short by a vigorous dig from the bill of his prosaic and shrewish spouse. In the case of the sparrow, however, and of the other birds I have mentioned, whose habits have been observed in more or less complete domestication, it is quite possible that the male, having no difficulty in finding food, has too much time on his hands, and shows off till the display becomes wearisome by repetition ; with birds which live more busy lives in the wilds it would, no doubt, come as a pleasing surprise.

As I have intimated, however, careful experiment is needed ; until females of their respective species are introduced to couples of males, one of which has had his characteristic adornments more or less shorn, and rejection of the disfigured suitors is noted, we are not justified in saying positively that the *raison d'être* of these decorations is the attraction of a wife, though *à priori* reasoning certainly leads to this conclusion.

HYBRID BIRDS

THE lover of birds may congratulate himself on the fact that his favourite class of animals has supplied more information to the student of the fascinating and difficult problems of hybridism than any other, birds being themselves more prone to hybridism than other creatures, and having been studied by so many observers both in the wild state and in confinement.

Wild hybrids are indeed rare, but they are of much more frequent occurrence than is generally supposed. They are most numerous among the species of the grouse family; the cross between the blackcock (*Lyrurus tetrix*) and the capercailzie (*Tetrao urogallus*) occurs every year, and has even received a special name (*Rakkelhane*) from Scandinavian sportsmen. Many instances of crosses between the blackcock and red grouse (*Lagopus scoticus*) have also been recorded; but, curiously enough, the latter bird and the ptarmigan (*Lagopus mutus*), although so much more nearly related, appear never to interbreed. Various other grouse crosses have occurred, but for variety of hybrids the grouse must give place to the ducks. In this family at

Ornithological and Other Oddities

least two dozen distinct crosses have been observed, some of them several times, such as those between the mallard (*Anas boscas*) and pintail (*Dafila acuta*), and between the smew (*Mergus albellus*) and golden-eye (*Clangula glaucion*). Wild hybrids between the small birds are much rarer, but several cases of the interbreeding of the linnet and the goldfinch with the greenfinch are known. Generally speaking there is, however, little wild hybridism outside the game-birds and waterfowl, with the exception of a special class of cases now to be noticed.

This is when two species differing practically only in colour, as opposed to those I have mentioned above, where the form and size are also distinct, come into contact locally. In cases like these a great deal of interbreeding takes place, and, the hybrids breeding back to the parent stocks, the locality of meeting is populated by a collection of intermediates. This occurs where the carrion crow (*Corvus corone*) meets the hooded crow (*Corvus cornix*); where the European and Himalayan goldfinches (*Carduelis carduelis* and *C. caniceps*) encounter each other; and where the blue rollers of India and Burma (*Coracias indicus* and *C. affinis*) come into contact, to say nothing of many other cases.

It is a question, however, whether this can be called true hybridism, since it may reasonably be

Hybrid Birds

argued that species which have got no further in separation than a different plumage are not as yet fully distinct, but rather comparable to the colour-varieties in our domesticated birds. That the intermediate birds represent the ancestors of the two forms does not seem at all probable, because the evidence is in favour of colour-varieties appearing suddenly, and not by gradations from an intermediate type. Thus, there are two forms of the common peacock, the typical (*Pavo cristatus*) and the black-winged (*Pavo nigripennis*), but there has never been an intermediate ancestor to these, for we know for a fact that the black-winged form, like the albino one, arises quite suddenly from the ordinary bird. It may also be remarked that the free interbreeding of forms or species separated only by colour is a fatal blow to the common theory that colour-differences are "recognition-marks" by which birds of a feather are enabled to flock together.

The fertility of undoubted hybrids—between species where other points combine with colour to make a distinction admitted by every one—is still very widely disbelieved. And there is some reason for the disbelief, since it appears to be the case that the commonest bird-hybrids, the "mules" between various British finches and the canary, are usually barren, though they will pair, lay, and sit in the most exemplary way, a hen "mule"

Ornithological and Other Oddities

being a notoriously good nurse for young canaries. Another common hybrid, that between the fowl and pheasant, is also well known to be sterile, as likewise are those between very distinct genera of pheasants. Nevertheless, fertile hybrids have been so often recorded in some cases that there is no possible doubt about them. A good typical instance is that of the hybrid between the gold pheasant and Lady Amherst's pheasant (*Chrysolophus pictus* and *C. Amherstiae*). The details of plumage in these birds are quite different, apart from the very different coloration of gold and scarlet in the one and dark-green and white in the other. The Amherst has a much larger tail, but a smaller crest, which grows only from the back of the head; his ruff is also fuller, and the feathers composing it are rounded instead of squared at the tips. The hens also, though much alike at the first glance, can easily be told apart, the Amherst hen being bigger with a smaller head, and having a bare livid patch round the eye and lead-coloured legs, while the gold pheasant hen has dull yellow legs and the face feathered over.

Now the hybrids between these two very distinct birds are fertile every way, either between themselves or with the parent stocks. Indeed, when Amherst hens were scarce, which was the case for some time after the introduction of the species, it was a common practice to pair Am-



Quail

Long Wing

SAND-GROUSE. (p. 180)

The long wings of these birds at once distinguish them from true grouse.



HYBRID BETWEEN AMHERST AND GOLDEN PHEASANTS (p. 16)

These hybrids are quite fertile either *inter se* or with the parents.

Hybrid Birds

herst cocks with golden hens, and breed the hybrid hens with the Amherst again, till the strain became practically pure Amherst. The hybrid cock is a more beautiful bird than either pure species, combining the scarlet of the golden pheasant with the larger amount of deep green of the Amherst, and possessing a crest as full as that of the golden pheasant, but of a flaming orange, the red of the Amherst pheasant's crest and the yellow of the golden bird's being perfectly blended. He often has the pure white ruff of the Amherst, but sometimes it is only of a pale gold.

On the other hand, the hybrid between the golden and common pheasants seems unfertile, the species being much more remote; nor can it fairly compare in beauty with either parent, although a handsome bird. At first sight its origin does not seem at all obvious, as the colours and markings of both parents have disappeared. The general hue is a rich golden auburn or chestnut, the tail being buff and the neck glossed with purple. The characteristic ruff of the golden pheasant almost disappears in the hybrid, as does also the hackle in fowl-and-pheasant hybrids.

There is in the Natural History Museum a most remarkable double hybrid pheasant, the offspring of a hybrid between Reeves' pheasant

Ornithological and Other Oddities

(*Phasianus reevesi*) and the common pheasant (*P. colchicus*) crossed again with the silver pheasant (*Gennæus nycthemerus*), the latter species belonging to a quite distinct group of pheasants called the Kaleeges, while the Reeves' and common are not by any means remarkably closely allied. This curiously-bred bird is very handsome, being white above, pencilled with black and brown, and a sort of plum-pudding mixture of black and brown beneath.

The most distant crosses on record occur amongst these gallinaceous birds. Hybrids between the peacock and guinea-fowl, capercaillie and pheasant, and red grouse and bantam fowl have been recorded, while even one of the guans is crossed in Mexico with the domestic fowl, and used as a fighting bird. The guans are always admitted to belong to a distinct family of the game-birds, having a large hind-toe like a pigeon, and spending a large part of their time in trees. Several species, with their allies the curassows, are often to be seen at the Zoological Gardens, but this Chacalacca or Mexican guan (*Ortalis vetula*), above alluded to, is not on view there at the time of writing.

A good deal of fuss has been made over the not uncommon cross between the Egyptian goose (*Chenalopex ægyptiaca*) and the ruddy sheldrake (*Casarca rutila*) as being a very remote one.

Hybrid Birds

But this is not really the case; the Egyptian goose is merely a large sheldrake, and is called a goose by the same right as a big buzzard is often promoted to the rank of an eagle. This hybrid, of which I have seen at least four specimens, is, however, very remarkable in its one-sided character. In all specimens I have seen, the ruddy sheldrake has proved strongly prepotent; indeed, were it not for its pink legs, slightly greater size and taller figure, and dull colour, the hybrid could scarcely be distinguished from a pure bird of that species, the very marked characteristics of the Egyptian goose disappearing almost completely except in the legs. The male hybrid's voice is a husky chatter as in the male Egyptian goose, whose influence is here apparently dominant, since the male ruddy sheldrake has as strong a voice as the female. One formerly at the Zoo used to have a mate of the same cross, but her eggs were always unfertile. This was also the case, as I am told by the bird-keeper at St. James's Park, with those of an Egyptian goose which was mated to a similar male hybrid recently. This hybrid and a brother were bred on the St. James's Park lake not long ago.

Although this particular hybrid would appear to be sterile, the duck family has afforded several undoubted cases of fertile hybrids. That be-

Ornithological and Other Oddities

tween the pintail (*Dafila acuta*) and the domestic duck, the descendant of the mallard, may be especially cited. In one instance ducklings were obtained from a pair of these hybrids, and more than once the hybrid has bred again with the pure pintail, the last instance being one recorded by Mr. J. F. B. Sharpe in the "Feathered World." In this case the hybrid duck laid eight eggs, all of which were fertile, and hatched seven ducklings, one egg having been cracked. She proved a particularly careful and intelligent mother, thus recalling the good repute of the mule canary as a nurse.

The fact that the pintail and mallard can produce a fertile cross shows that there is some other cause besides mutual sterility which keeps species distinct in the wild state, for, as I said above, the pintail-mallard hybrid is one of the best-known wild-bred hybrids, and yet the two species remain distinct on the whole.

Double hybrid ducks have occurred, as well as pheasants. M. G. Rogeron, of Angers, has bred many most remarkable ones from a hybrid between mallard and gadwall (*Chaulelasmus streperus*) mated to a pochard (*Nyroca ferina*), and more recently Mr. J. L. Bonhote has succeeded in raising ducks in which the blood of the pintail, mallard, and Indian spot-billed duck (*Anas pæcilorhyncha*) was combined.

Hybrid Birds

Turning now to some other groups, we find a fertile hybrid among the parrakeets in the so-called red-mantled parrakeet (*Platycercus erythropeplus*), which has produced young in confinement, and was shown in a recent volume of the *Avicultural Magazine* to be merely a hybrid between the Rosella (*Platycercus eximius*) and Pennant's parrakeet (*Platycercus elegans*). These two parrakeets are very distinct, Pennant's being a bigger bird than the rosella, and coloured red, purple-blue and black, with a distinct immature plumage of uniform olive-green, while the rosella's colour is very largely yellow in addition to the other hues, and it assumes almost perfect adult plumage from the nest.

Considering what free breeders are the various species of doves and pigeons, it might have been expected that much light would have been shed on this subject by that group; but this appears not to be the case. Wild hybrids among these birds are almost unknown, and even in domestication very remote crosses seem not to have occurred. The two domestic species, however, the common pigeon and the collared turtle-dove (*Turtur risorius*) not unfrequently produce hybrids; but these appear to be usually quite sterile, although ready enough to mate. Out of three of these I have seen, two exactly

Ornithological and Other Oddities

resembled common mongrel pigeons in colour, though showing in their shape their relationship to the dove. The third, however, was of a creamy-dun shade. •

The different species of turtle-doves, though distinct enough in themselves, might reasonably be expected to produce fertile hybrids, and accordingly we find Mr. J. T. Newman has succeeded in getting several, including double hybrids.

Lastly, it has been recently proved by Mr. P. St. M. Podmore that the female wood-pigeon will produce a fertile hybrid with the domestic pigeon, the hybrid cock producing young with the domestic hen, although the cock wood-pigeon will not do so. This singular discrepancy shows how difficult it is to say positively whether any hybrid is or is not fertile, and indicates the importance of extended experiments in this most promising field.

LOVE AMONG THE BIRDS

IN no aspect are birds so charming and entertaining as in their love affairs, for no creatures are so full of tender sentiment, and none display the said sentiment so gracefully, whether the display be a musical or spectacular one. Their affections also are often deep and lasting, though it is not always the species most credited with constancy which really display it the most.

The dove family, for instance, have always been taken as patterns of conjugal affection, and certainly they make fuss enough about it. The "livelier iris gleams upon the burnished dove" as, with swollen throat and sweeping tail, he parades round his mate, rolling out his love-song; but pigeon-fanciers find that if the two are separated for a winter they rarely recognise each other next year, which argues that the pigeon's attachment to his mate is not so strong as his known love for home. At the same time, it must be admitted that if the pair are let alone, they are likely to remain mated till death parts them, though cases of infidelity occur now and then in individuals.

The pigeon's more graceful relative, the turtle-

Ornithological and Other Oddities

dove, has a less impetuous, but more graceful courtship. When bowing to the hen, he does not spread his tail or strut about round her, merely following humbly in her wake; but he has a very pretty aerial display, which makes up for his want of activity when perched. He towers up a dozen yards into the air, and then, with raised and outspread tail, comes gently gliding down again, showing off his beautiful though sober plumage to the greatest advantage. So rooted is this instinct in the tribe that I have seen the domestic cream-coloured turtle-dove perform this pretty feat when let out, although his aviary-bred ancestors could not have done it for who knows how many generations.

From doves to ducks is a great jump in the eyes of most people; even Chaucer takes occasion to contrast the two as examples of coarse indifference and refined tenderness; but there are ducks and ducks, and the quaint little Mandarin drake of China can put to shame any turtle-dove as a devoted lover. Ostentatious he is, indeed, as Mr. Dando's photograph shows; and he has attitudes more extravagant than this, as he will raise his crest yet higher and curve his neck back till it almost touches his raised wing-fans. Then, to see him dip his bill in the water and turn to put it behind his wing, as if to smarten it up with a final touch, one would think him the most con-

Love Among the Birds

summate of bird dandies. But he is tender and true with it all ; his mate is the sweetest little Quaker that ever won a drake's heart, and the two are seldom far apart. Often they may be seen tickling each other's heads in a very un-duck-like manner, and it is a question which loves the other most. One day I saw a drake of this species in St. James's Park with a duck on each side. When approached, one of the ladies took wing and skimmed down the lake ; the drake also sprang into the air twice, but his true mate was pinioned and could not follow him, so he stayed by her side. The other duck had, of course, been pathetically enough seeking consolation for her loneliness by associating with the married couple, at the risk of an assault from the drake as well as his mate, for Mandarin ducks hold very strongly that two are company and three none. Indeed, the drake carries the idea to the point of brutality, for if penned up in a basket and despatched to a poultry show with the wrong duck, he is liable to kill her in his vexation at such close company with a stranger.

On her part, the Mandarin duck is more affectionate than most female birds, which, to tell the truth, are usually heartless to a degree. One kept many years ago in an aviary in China had her mate stolen, and, refusing the consolation tendered by another drake, moped and neglected

Ornithological and Other Oddities

her food and toilet till the lost one was restored. The sequel was curious and tragic; for the returned husband fell upon his would-be supplanter and mortally injured him. I have not the least doubt that the duck incited him to this; for the Mandarin duck is as bad as an ancient Icelandic lady for stirring up fights, and one can soon understand her gesture-language of pointing and beckoning as well as her devoted husband does. Very funny it is to see him, urged by such signs, rush out at another luckless Mandarin, who, as he hurries away with plumage pressed closely down, looks quite a different bird from the swelling victor returning in his pride to his admiring consort.

Few of the ducks are so loving as this, and none so quaint in their expressions of emotion; but the Mandarin's only near relative, the Carolina or Summer duck of North America, is even stronger in his affections, as he will call his wife to a dainty, like the barndoor cock, and has been known even to die of grief at her sudden decease. Speaking of the familiar rooster's generosity to his hens, reminds one that that gentleman is certainly in most ways an excellent husband. He rules a harem, it is true, but there is usually a favourite of whom he is really fond, and he is generous to all and brave in their defence, while most chivalrous in his abstention from striking

Love Among the Birds

them, even under the severe provocation of the attacks of a feather-eater.

Most of the pheasant family, to which he belongs, are less admirable in character ; they fight hard for their mates with each other, but they are rough wooers, and if their display does not meet with what they consider proper attention, the coy fair one is likely to be scalped, if not murdered outright. They certainly take enough trouble to make themselves admirable in the eyes of their somewhat irritating companions, the prevailing idea among them being to endeavour to show both sides at once by slanting their bodies over and expanding their tails sideways. To this the common pheasant adds the expansion of his scarlet velvet mask, and the exhibition of his horn-like ear-tufts, while the gold pheasant spreads his jet-and-amber cape into a gorgeous fan, turning it from side to side, according as the demure little coquette he is pursuing dodges him. If he can get her still for a moment, out go fan and tail at once, with a long-drawn hiss, as if he said : " Sh—sh ! just stop and look at this ! " But he is only a mass of gilded vanity after all, so taken up with himself that he does not much care to whom he shows off. A few years ago I used to watch full-plumaged gold pheasants in the Canal Bank Aviary at the Zoo which were showing off, in spite of snow and frost, to each

Ornithological and Other Oddities

other and some young cocks of the year whom they evidently mistook for hens; while one wasted his gold and scarlet splendour in vain attempts to impress a pied jackdaw, the cheekiest bird in that aviary, and one who is no respecter of persons, however well-dressed. This determination to swagger at any price has always been supposed to be the especial prerogative of the peacock, and certainly Sir Petitpas does seem to have an eye to an audience for his dance, as his fellow-countrymen in India call the display.

“Praise the proud peacock, he expands his train;
Keep silence, and he pulls it in again,”

said Ovid, twenty centuries ago, and a lady told me recently that if you clapped your hands to the Battersea Park peacock he distinctly appreciated it, and besides, liked to accumulate a few spectators before he began to show. At Battersea I once witnessed a funny episode myself. The peacock was executing the usual step-dance before a small but appreciative audience, when the peahen, either getting jealous or feeling that imitation was the sincerest flattery, started displaying on her own account—almost the only occasion on which I have seen the hen do so, though the ridiculous exhibition of the hobble-dehoy peacock, as yet untrained in a double sense—is not at all an uncommon sight.



C. C. Davis

H. P. Davis

GREEN PEACOCK

Showing the spear-shaped crest and saddle-like feathering



C. C. Davis

H. P. Davis

"JAPAN" PEAHEN

The male of this variety is like the common Peacock, but with black wings

Love Among the Birds

More experimental evidence is needed before we can be certain that the peahen—or any other hen bird—is really impressed, or influenced in her choice, by her lord's sometimes rather grotesque antics. But that peahens are full of sentiment, and capable of falling in love, admits of no doubt. Only recently, a common peahen (of the grizzly-white "Japan" variety) at the Zoo lost her heart to the green Burmese peacock next door, and quite neglected her proper mate, as handsome a specimen of her own race as one could wish to see. The Japanese, who know both species, evidently regard the green peacock, with his scaly plumage, and long lance-shaped crest, as the most beautiful, as this one only appears in their art work; but it is curious to find that a peahen of alien race may share this view. It must be remembered that in a state of nature the two species do not meet, as one is western and the other eastern.

But one of the most remarkable phenomena about bird-love is this arising of curious attachments between distinct, if allied, species, when man brings them together. Geese, which overflow with tender feeling, are peculiarly liable to form unlooked-for attachments; and one between a Canadian goose and a Bernacle gander has been chronicled by no less an observer than Charles Waterton. Such devotion to a foreigner

Ornithological and Other Oddities

is apt to be particularly strong, and M. Gabriel Rogeron, whose delightful book, "*Les Canards*," should be in the hands of every one who is interested in the half-human heart that beats under a bird's feathers, gives a most amusing instance of this—the case of a Garganey teal drake, who was consumed with admiration for Mandarin ducks; "for his heart," says M. Rogeron, "was large enough to embrace them all." He would have nothing to say to his own species, and his own mate in return very properly scouted him. An attempt was made to wean him from this unfortunate infatuation by sending him away to live among a mixed collection of other birds, from which his charmers were absent. But it was of no use; after more than a year's absence from its objects his hopeless passion was as strong as ever, and his owner was forced reluctantly to banish him for ever.

Romance in most people's minds attaches itself more to the little song-birds than to the bigger species I have been mentioning; but though the same emotions appear in them, they are usually less marked and less striking in their expression, even allowing for the difference in size. Moreover, the females of small birds, especially those of temperate climates, are often particularly nasty-tempered little things. Most people have seen poor Philip Sparrow's well-meant attempts



L. J. 1900

THE SKYLARKS OF THE ISLE

Love Among the Birds

to look like a peacock, or at least a turkey, cut short by a vicious dig from his unamiable helpmeet; possibly she thinks dancing alone, undiversified by the music and refreshment provided by more refined birds, is a monotonous way of expressing devotion. "Beau goldfinch," as one would expect, is a better lover; not only has he a pretty note, but he displays his varied plumage effectively, while avoiding vulgar ostentation, giving a kaleidoscopic effect by swaying from side to side, till the gold of his wings fairly flashes. The hen goldfinch is, I think, a kinder mate than the hen sparrow; at any rate, one I had used to feed a peevish and sickly male companion, feeding a male bird at all being an almost unheard-of performance for a hen. The poor fellow's temper was probably due to a disordered liver, contracted before I got him, for both were Siberian goldfinches, and another Siberian cock I kept, a healthy bird, was most chivalrously forbearing to a little English hen, which used to drive him about. The Siberian goldfinch seems generally quieter in nature than the English race of the species—at any rate, it resents confinement less, like most birds imported from abroad.

The goldfinch, as every one knows, is often paired by fanciers with a hen canary, but does not seem to feel much affection for her, for which one can hardly blame him, as the *mésalliance* is not of

Ornithological and Other Oddities

his choosing; yet, in a similar case, the linnet shows more tenderness of heart, for he will not usually bear transference from one hen canary to another, often pining to death when this is attempted. This is, indeed, in keeping with the linnet's gentle nature, for it is one of the most sociable of our finches. The truth soon impresses itself on any one who studies the inner life of birds, that species, like nations, have their own particular moral nature, subject similarly to individual exceptions; and nothing brings this out more strongly than observations on birds when under the influence of love.

SOME INDIAN CUCKOOS

WITH us in Britain the cuckoo, though he does not neglect to make his presence felt, is a bird apart, strange and abnormal in appearance, note, and habits; but in warm countries cuckoos are numerous and familiar birds, and form a conspicuous feature in the bird world. At any rate, this is very much the case in India, where some of the commonest and most obtrusive birds are cuckoos, which do not allow themselves to be ignored by the most casual observer, being obvious to the ear if not always to the eye.

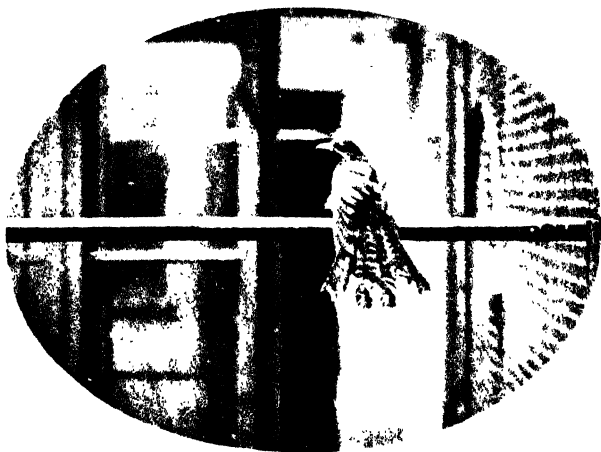
The best known of all is that splendid fellow the koel, or black cuckoo (*Eudynamis honorata*), whose full, jovial, crescendo notes compel attention wherever he is found, and that is all over the plains of India. The male and female of this bird are so unlike that they hardly seem to be referable to the same species, the former being glossy blue-black, and the latter speckled, and somewhat the larger of the two. Both have ruby eyes, and bills of the delicate green of jade, and, being very elegantly formed birds, and as large as jays, are a distinct addition to the landscape as they skim from tree to tree with a

Ornithological and Other Oddities

steady level flight. Unlike most cuckoos, the koel is frugivorous; but this does not prevent her choosing crows, of all birds, as the foster-parents of her young. Of the two common Indian crows, the big black country crow (*Corvus macrorhynchus*) and the smaller grey-headed town or house crow (*Corvus splendens*), she mostly favours the latter, as its laying season coincides better with her own.

These crows know perfectly well that they have an account against koels, and hunt them vindictively on any possible occasion, an animosity which the cuckoos appear to turn to some practical account. They cannot frighten the crows away from their nests, so that another plan has to be adopted; while the crows are hunting off the male bird, the female slips in and deposits her egg in safety. The egg once laid, the crows appear to accept the situation; it is very like their own clutch, except for its rather smaller size, and crows are supposed not to be good at arithmetic, so that an addition to the number may not puzzle them. It must, however, ultimately dawn upon them that the little egg has produced a very curious kind of crow; but they get reconciled to it, for they continue to feed it even when it has become full-fledged and left the nest, as I have myself seen.

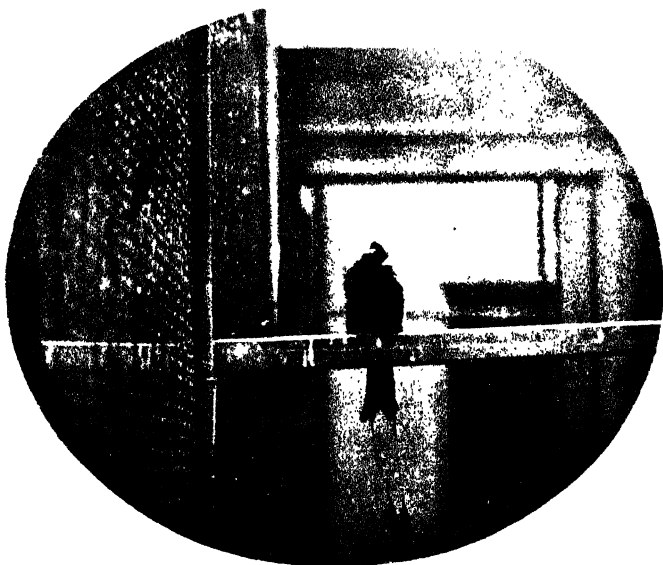
The nestling has been stated to be black at



Colaptes auratus *Forster*

FEMALE KOLI (p. 33)

The side of the common Koli is entirely even and



Dicrurus leucophaea *Forster*

MALE RACKET-TAILED DRONGO (p. 115)

Showing the two long racket-like feathers in the tail

Some Indian Cuckoos

first, and afterwards to become spotted, the males ultimately turning black again. But about Calcutta, at all events, this was not the case; I never saw a female nestling which was not spotted, however young, while the young males never had more than a few spots. I had an opportunity of examining a good many, as the koel is a favourite cage-bird with natives, and was consequently often to be seen in the bazaars in various stages of immaturity during the spring months.

Koels, unlike most cuckoos, thrive very well in captivity. They are fed on *sattoo* (pea meal), made up into a paste with water, and kept in wicker cages, usually not any too large. The demand for them as pets arises from the admiration the natives feel for their note, and the male bird's beautiful glossy plumage is an additional charm. Indeed, the koel serves the native poet in several ways. The locks of beauty are compared to his plumage, while his note is the symbol of mellifluous speech, and he is also famed, like our cuckoo, as the harbinger of spring. Unfortunately, the Indian spring is a little too pronounced for European tastes, and as the joyous bird keeps up his "kuk-kuk-ko-eel, ko-eel, ko-eel" or his liquid "ho-ee-o" by night as well as by day, he is not unduly beloved by Anglo-Indians. When it is hard to sleep

Ornithological and Other Oddities

by reason of the heat in any case, even the nightingale might be voted a nuisance. The koel really is a delightful bird, however, if one does not get too much of him, and it is unjust to mix him up with the brain-fever bird, as is not unfrequently done.

The brain-fever bird is known in the books as the hawk-cuckoo (*Hierococcyx varius*). It is not so common as the koel, nor so frequently seen. Indeed, it is probably often passed unidentified even if perceived, as its plumage and flight exactly resemble those of the commonest Indian sparrow-hawk, the shikra (*Astur badius*). Our cuckoo is fairly like a hawk, but the resemblance is not to be compared with that exhibited in the Indian bird, which mimics its model not only in the grey and barred adult plumage, but in the brown and streaked nestling livery. The hawk-like plumage of the old bird is effectual in scaring away the babbling-thrushes, in whose nests the hawk-cuckoo deposits her eggs, and these eggs are unspotted blue, like those of the babblers themselves. So far, so good; but it seems that in some cases babblers, which are very clannish birds, will stand up to the real hawk; and in any case it is hardly likely they would be conciliated by seeing the hawk-like plumage of their foster-nestlings, which they rear nevertheless. Thus it seems that all



SHIKRA HAWK

The upper side of the tail is marked as in the Hawk and as
F. f. aculeatus (H. *aculeatus*).



BRAIN-FEVER BIRD

The exact correspondence of the mimic with its model is notable even in black and white
F. f. maculosa (M. *maculosa*).

Some Indian Cuckoos

this elaborate "mimicry" is pointless after all, and a mere coincidence, such as one often finds in the coloration of animals. The scientific interest of this bird, however, is as nothing to that excited by the noise it makes, which generates a thirst for its blood in the average Anglo-Indian mind. Imagine a bird trying to whistle the words, "Brain-fever! *brain-fever!* BRAIN-FEVER!" over and over again, till it has reached the highest pitch its voice can compass, and then after a short rest beginning again, and you get some idea of the infliction—"When the 'eat would make your bloomin' eyebrows crawl," as Mr. Kipling's Tommy says. The natives, however, admire the note, and frequently attempt to keep the minstrel caged, but with indifferent success as a rule. My friend Mr. E. W. Harper, however, sent one to the London Zoo some years back. But it did not survive long, and never regaled visitors with its melody.

This species of hawk-cuckoo is confined to the plains and comparatively low elevations in the hills; but there is also a true hill-species (*Hierococcyx sparverioides*), which is a bigger bird, and resembles a different hawk, the besra (*Accipiter virgatus*). It has a similar note to the low-country bird, but its nesting habits are different and very interesting, as, while in the Himalayas victimising some of the hill-babblers,

Ornithological and Other Oddities

in the Nilgiris it appears to build its own nest, a simple structure of sticks; so that here, apparently, we have a species in the very act of locally degenerating into parasitism, while it remains a respectable bird in other parts of its range. Its eggs are white with a few spots.

The unfortunate babbler tribe are utilised in the plains of India by another cuckoo as well as the brain-fever bird, and this case tends still further to complicate the mimicry question, for, though the eggs are, as in the former case, plain blue, like those of the dupes, the cuckoo itself has no resemblance to a hawk—at any rate, not to any Indian hawk. Indeed, there seems not to be any hawk which, like this cuckoo, is black above and white below, with a pointed crest, and about as big as a missel-thrush, so that there is no mimicry here. The curious thing is that the crows do not like this cuckoo, and hunt it about as they do the koel, though it does them no harm. They probably object to cuckoos on principle, as they do to owls. This is a noisy bird, but I cannot remember anything about its note. I once brought up two young ones, which were less distinctly coloured than the adults; they were very quiet, and decidedly stupid, taking a long while to learn to feed, like most young cuckoos. This species is the *Coccyzus jacobinus*.

Some Indian Cuckoos

With the plaintive cuckoo (*Cacomantis passerinus*) I have no personal acquaintance, although it is widely spread in India. It is a smallish species, not exceeding a blackbird in size, slate-colour when adult, and barred when young. Its call does not seem to be at all remarkable, being rendered by "whe-whew, whe-wheew!" and I never heard of any one considering it annoying. But it differs from the birds I have been discussing above in being far less limited in its choice of foster-parents, and in this respect resembles our wild birds; for its eggs have been found in the nests of a small grass-warbler (*Prinia inornata*), a small babbler (*Pyctorhis sinensis*), a shrike (*Lanius erythronotus*), and a bulbul (*Molpastes bengalensis*). These lay very different eggs, but the only colour for the plaintive cuckoo's eggs appears to be pale blue with reddish and purple spots, which would certainly not be a good match for any of them except the warbler's.

I may conclude as I have begun, with a reference to our own familiar cuckoo. This I only actually saw once in India, when a bird-catcher brought a fine adult specimen to me in the winter, but I have heard its ever-welcome note at Darjeeling in the spring, for it is as common in the Indian hills as in Europe. Curiously enough, though its eggs have been

Ornithological and Other Oddities

found in the Himalayas in the nests of Indian birds, these have been always of European types, if not identical with European *species*—robins, chats, and titlarks—while it mostly leaves the Oriental babblers and bulbuls alone. It is this preference for the more widely ranging groups of small birds, which populate Europe as well as the temperate elevations of the great Indian mountain-chain, that has probably given *Cuculus canorus* its power to extend its range into a region where its kindred are, as a rule, unknown, for it is significant that the only other truly European cuckoo, the large crested species (*Coccyzus glandarius*), is also a dependent on a widely ranging group, in this case the crow tribe. That the koel has not been able to follow these westward also is no doubt attributable to its fruit-eating habits. Fifty years of Europe may be better than a cycle of Cathay for mankind, but such a period would be quite long enough for the extinction of any large fruit-eating bird, if we may judge from the absence of such in our part of the world.

THE TOILET OF BIRDS

NOT the least remarkable of the peculiarities which mark out the birds as the most refined class of living things is the attention they pay to their toilet. They are the only creatures which bathe for cleanliness' sake; beasts may lick themselves, or wallow luxuriously for pleasure—in mud as readily as in water, or often more so—but deliberate washing in water is purely a bird custom. It is true that some groups content themselves with a “dry polish,” rolling in sand or dust, such as larks and the whole pheasant family, but this indulgence is sought as eagerly as the bath, and no doubt is an excellent substitute. Very few birds both dust and wash, among them being Philip Sparrow, who is quite *au fait* with every indulgence which can make bird life enjoyable, with the exception of song—probably too refined a form of amusement for his sensual tastes.

But in addition to external sources of personal beautification, birds have on their own persons toilet requisites of a very interesting kind, although it is given to comparatively few to enjoy all of these at once. There is, in the

Ornithological and Other Oddities

first place, the pomatum-pot formed by the oil-gland, almost the only skin-gland, by the way, which birds possess. This is a heart-shaped mass situated on the upper surface of the root of the tail, and ending in a small pimple, often tufted with feathers, and exuding a buttery secretion with which the bird anoints its plumage. As might be expected, it is particularly well developed in water-fowl, and every one must have seen the duck assiduously oiling its hair by rubbing its head on the root of its tail. But it is unusually copious in secretion in some land birds also ; the great concave-casqued horn-bill (*Dichoceros bicornis*) owes the yellow colour on its neck and some of the wing-feathers to the very free supply it has of this natural brilliantine, which it assiduously applies every day when making its toilet. This staining power of the secretion is quite exceptional, as is also any odour attaching to it ; but in the Muscovy drake it sometimes, at all events, is perfumed with musk, and in the sitting female and nestlings of the hoopoe it is credited with exhaling the horrible smell which gives this pretty bird its evil name in French and German proverbs.

The most curious fact about the oil-gland is that many birds get on perfectly well without one. Among these are the Amazon parrots and

The Toilet of Birds

most cockatoos, the Argus pheasants, and all the giant flightless birds ; while the curious " rumpless " breed of fowls also lacks it, and yet these birds look as sleek as ordinary poultry. It is absent, or poorly developed, also in pigeons and nightjars.

Nature has been even more sparing in her distribution of another appurtenance of the bird's toilet table—the powder puff, whence the delicate powder which forms a bloom on the plumage of some species is derived. This powder emanates from certain peculiar feathers which disintegrate or rot as they grow, thus producing the powder. They may be scattered about the body, as in Amazon and grey parrots and cockatoos, or collected into large patches in definite regions, as on the breast and back of the herons, where they are very conspicuous when the feathers are parted so as to show them. Something of the kind must also exist in many other birds, where it does not seem to have been noticed, as in the pigeons, which are very powdery birds, as any one who has handled them much will testify. But books on birds usually mention these " powder-downs " as restricted to few groups, or to a few isolated members of large families ; thus, among our hawks, the harriers have powder-patches, but no others. Powder appears to some extent to replace pomade in birds, for

Ornithological and Other Oddities

it will be noted that among the above birds are several in which the oil-gland is absent or inefficient, and none of the water-fowl have powdery plumage, so that the function of this mealy covering may be to throw off wet. It is certainly obvious that pigeons do not get wet so easily as most land birds, and in the pretty little cockatiel, a member of the cockatoo group, I have noticed that the plumage throws off water quite as well as a duck's, although this bird does not enter that element even to bathe, much preferring a shower-bath in the rain. Indeed, most of the parrot tribe seem to enjoy a shower, as also do pigeons.

But the greatest luxury of all would appear to be the comb, which is given here and there to the most incongruous birds in a way there is no accounting for. It is situated on the inner edge of the claw of the third toe—the first being, I should remark, the hind toe—and it is with this third toe that birds always scratch themselves, for some occult reason. For the third toe is not the nearest to the bird's head, nor is it the longest in every case, although usually so; while in birds like parrots, which have only two toes in front, it cannot be the middle one, as it is in most cases. This serrated claw is found in herons and cormorants, in nightjars and grebes, and in a few more

The Toilet of Birds

isolated cases. In the nightjars it is most perfect, and it has been suggested that in their case it is a moustache-comb; but that explanation breaks down, because some of this family, such as the American nighthawk (*Chordeiles popetue*), have no moustache to comb, unlike our bird with its long, straggling bristles round the mouth. Nor are the herons bristly-mouthed, and yet their comb is a very good one, coming next to that of the nightjars. The barn owl and its kin, also, are exceptional among the owls in possessing this curious implement, and in their case there seems no possible reason why they alone of their family should be thus gifted. But in these owls the comb is still in a state of evolution, for in two specimens of the Andamanese barn owl (*Strix deroepstorffii*), which I examined, I found it was not developed, and Mr. F. E. Beddard, the prosector to the Zoological Society, and Dr. Bowdler Sharpe of the British Museum, also found it absent in the curious bay owl (*Photodilus badius*) of India, each examining one specimen; the species is now known to normally possess the serrated claw, so it is variable in this point.

When once the structure exists, it is obviously of more use for scratching, since the teeth will serve to catch the vermin with which all birds are more or less infested, and this may explain its large size in the nightjars, whose tiny beak

Ornithological and Other Oddities

is not at all well adapted for ridding their persons of such unwelcome guests. Thus in the groups where it occurs, no doubt natural selection has tended to preserve it; at the same time, the case furnishes an excellent illustration of the fact, too often overlooked by zoologists, that no structure, however much needed, can be developed by selection until some strong innate tendency to produce it has appeared. Just as few birds, as I have already said, enjoy the pleasure of both sand and water baths, so few can claim to possess all the toilet appurtenances I have mentioned. The birds which have the best powder-puffs, the great Australian frog-mouthed nightjars or moreporks (*Podargus*), have no pomade or comb at their disposal; and the Argus pheasant, which of all birds gives up most for personal adornment, and spends most of his time in a cleared space in the jungle, which he keeps neat and trim as his boudoir, has to perform his toilet without oil, powder, or comb. Yet all three are bestowed on the herons, some of the laziest of birds, which are no more energetic in their toilet than in anything else, being also singularly devoid of ornaments peculiar to the male sex.

It seems, therefore, that this partially-spread toilet-table is altogether a mystery; but, after all, we know very little as yet of the intimate

The Toilet of Birds

habits of birds as opposed to the broad general outlines of their life. It took me a long time to find out the universality of scratching with the third toe among birds, and I expect it will be longer yet before I, or any one else, will succeed in getting a step further and explaining some of the inconsistencies of Nature I have touched on in this article.



THE SENSE OF SMELL IN BIRDS

SOME time ago, Dr. A. Hill, writing in *Nature*, asked for information about the powers of scent, if any, possessed by birds. His own experiments with a pair of turkeys pointed to an extreme obtuseness in this respect in these birds, and no information appears to have been forthcoming from other observers. As a matter of fact, there appears to be very little direct evidence that birds have any power of scent at all, and it seems to be worth while to collect together a few facts bearing on the subject, as a nucleus to which other nature-students will doubtless contribute. My own personal experience, save for one instance, would have led me to conclude that birds have no sense of smell; and that after a long series of experiments designed to test the truth of the current theories about the "warning" coloration of distasteful animals and the "mimicry" of these by more palatable creatures. I have found in most cases that a bird did not know whether any given insect was unpalatable on the first presentation of that particular kind, until it had tasted it, and sometimes not until the theoretically ill-reputed morsel had actually been

The Sense of Smell in Birds

swallowed and digested, when a second proffer of it would be declined.

A pied hornbill which I kept, however, showed a keenly discriminating taste in butterflies—my usual material for experiments when I lived in India—and expressed the same by wiping the objectionable kinds on the front of my shirt as he sat on my wrist, and then finally rejecting them. Now, this he must have done independently of the sense of taste, because he only picked up objects he was testing with the tip of his bill, and in hornbills the end of the beak for some distance is as dry and horny inside as it is outside, and the very short tongue is situated far back. I conclude, therefore, that the bird formed his judgments on the edibility of butterflies by scent, this penetrating by the posterior nares at the back of the mouth; and I may mention that he rejected cigar-ends in just the same way, after a preliminary pinch with the tip of the bill.

Monsieur G. Rogeron, in his work on ducks, incidentally gives a particularly interesting instance of what certainly appears to be acute scent in a bird. The creature in question, a much-petted jackdaw, was very fond both of salt and of sugar, but, while using the former with discretion, as might have been expected, he would recklessly cram his bill with the latter substance. Attempts were often made to play a practical

Ornithological and Other Oddities

joke on him by substituting fine salt for powdered sugar without his knowledge, but he never failed to distinguish the two before tasting, which argued in him a power of scent far superior to our own at any rate.

The duck tribe themselves have always been credited with a keen sense of smell by decoymen, whose practical experience ought to go for something; they certainly advocate burning a sod of peat when the wind blows towards the fowl, to avoid the carriage of the human scent in their direction. And St. John, in that delightful book, "Natural History and Sport in Moray," says that he has constantly seen wildfowl swim towards him as he lay in ambush, without the slightest suspicion until they came directly to windward, when they would rise in as much alarm as if he had stood up in full view. He had had a similar experience with geese on many occasions, and he gives in another passage a case in which ducks were apparently guided to their food by scent. In a year when potato disease was prevalent, he had had a heap of the half-rotten tubers put partly underground, and then covered over with a good thickness of earth, as being too bad even for the pigs. Nevertheless, some domesticated wild ducks had scented them out, and dug into the heap in all directions, leaving their corn for this very foul fare. Unless the ducks had simply

The Sense of Smell in Birds

fossicked in the earth and found the rotten potatoes by accidental contact, this certainly argues a real scenting power, and at any rate, the experiment would be easy to repeat with any food to which ducks are partial. It may be mentioned that this observation led him to notice that the truly wild ducks were so attracted by the rotten potatoes in the fields that they could be found there even in the middle of the day; this certainly indicates a cheap food for stock ducks, although not at all a desirable one for birds which are destined to an early appearance at table.

St. John, like field observers in general, did not believe that carrion feeders were guided to their food by scent, and in connection with this, Darwin's experiment with condors is worthy of notice. When at Valparaiso, he found a number of these birds kept tethered in a garden, and only fed once a week by their unfeeling owners, so that they must have been in a chronically famished state. Wrapping a piece of meat up in paper, he walked to and fro with it within three yards of them, but they took no notice, and when he threw it down within a yard of one old male, the bird only paid it momentary attention, till it was pushed so near him with a stick that he touched it with his beak, when he furiously tore off the paper, to the great excitement of the other birds.

Ornithological and Other Oddities

Anatomical investigation shows that the kiwis (*Apteryx*) of New Zealand possess a particularly well-developed organ of scent, and Sir Walter Buller, in his "Birds of New Zealand," says of the North Island species (*Apteryx bulleri*), that, when hunting for food, it keeps up a continual sniffing sound as the bill is darted forward and travels over the surface of the ground, giving the impression that scent is employed more than sight in the search for food. The sense of touch, however, appears also to be called into play, as the bird will always first touch an object with its bill, whether feeding or searching, even if it may not be audibly sniffing ; and will pick up a worm or piece of meat as readily out of a vessel of water as off the ground, always first touching it with the bill. As, however, the nostrils in these birds, and in these only, are situated at the end of the bill, and as the sniffing sound proceeding from them is only heard when they are feeding or seeking food, the conclusion that in this bird at any rate scent is very important, seems irresistible. Another flightless bird, the emu, seems also to be gifted with keen scent, for Mr. C. W. Ginn, who has spent part of his life in Australia, tells me that it is able in some way to detect approaching human beings before they can possibly come in sight, as, for instance, when a rise in the ground intervenes. As Dr. Hill says in the

The Sense of Smell in Birds

letter above quoted, information about these flightless birds, which live the life of mammals, is particularly desirable, for one might reasonably expect in them a greater development of the power of scent than in ordinary flying birds, in whose lives it seems as a general rule to play no very noticeable part.

MIMICRY IN BIRDS

EVERY student of the theory of natural selection is familiar with the wonderful cases in which some defenceless insect closely copies in its appearance a quite unrelated form, which for some reason or other—objectionable taste or exceptional means of defence—appears to be more immune from attack than the majority; but the cases of this “mimicry,” as it is called, among birds are not so well known, and it is worth while here to review them in order to be able to gain an idea as to how these remarkable resemblances came about, in the case of birds at all events.

The best-known instance of mimicry in birds, and the one most usually quoted, is the resemblance between certain orioles and friar-birds in the islands of the Australian region. Friar-birds are large honey-suckers, forming the genus *Tropidorhynchus* of ornithologists. They are not attractive in appearance, being of a dull snuffy-brown colour, with some bare blackish skin about the eyes. They are, however, unusually well able to look after themselves. Being as big as blackbirds, with sharp, curved beaks, and very



BOUKU' TRIAK BI
The model of the mimicking
by permission of Messrs. H. & C.



BOUKU' ORIOLE
This mimicking species should be compared with the more normal Black-headed one
by permission of Messrs. Hutchinson & Co.

Mimicry in Birds

strong feet and claws, and having besides a clannish disposition, they are inclined to band together and defend themselves against hawks and crows—are not, in short, the sort of quarry with which the average bird of prey cares to have to do. The orioles, on the other hand, are solitary birds with small weak feet, and bills which, though stout enough in their way, are not such efficient weapons as the nicely-curved and sharp-pointed bill of the friar-birds.

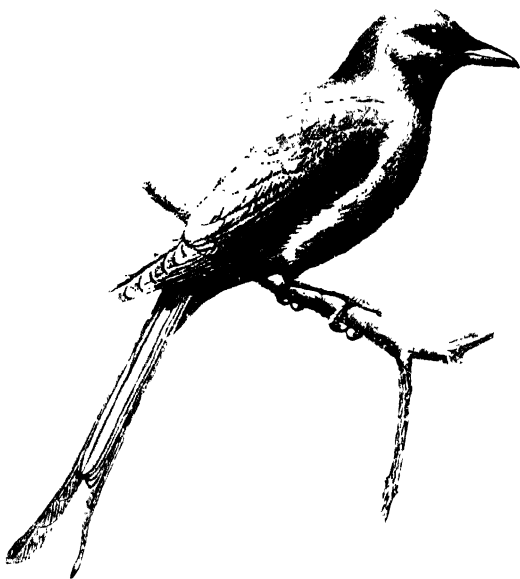
Now in certain islands where both friar-birds and orioles occur, it is noticeable that the local orioles, although belonging to a family which is usually brilliant in colour, at any rate when adult, are of just the same quakerish shade as the honey-suckers living with them. More than that, where the friar-bird shows a bald black patch round the eye, there the oriole will have a patch of dark feathers to match it; the friar-bird's ruff or cowl of reversed feathers will be copied by a light patch on the oriole's neck, and the high-ridged bill of one friar-bird is imitated by its corresponding oriole having a similar Roman nose. The sum total of these remarkable resemblances is that the birds are so well matched that naturalists getting hold of their skins easily mistake the orioles for honey-suckers. I know I did myself when I first saw one of these "mimicking" orioles in a drawer full of oriole skins, thinking that some

Ornithological and Other Oddities

one who did not know his business had been confusing the collection I was inspecting; and many years ago a mimetic oriole (*Oriolus bouruensis*) was actually described in a scientific publication as one of the friar-birds. It is accordingly presumed that hawks make the same mistake about the living birds, and let off the orioles when they meet them, for fear of getting a whole brotherhood of friars about their unlucky heads.

Another case, even more striking than this, because the birds concerned in it are not so nearly akin—both friar-birds and orioles being Passerines—is that of the drongo and its mimic, the fork-tailed cuckoo. The drongo (*Dicrurus ater*) is familiar to all residents in the East as the king-crow; he is a black bird about the size of a starling, with short legs and a conspicuously forked tail, who spends most of his time sitting on telegraph wires or dead boughs and dashing out at passing insects. Such time as he has to spare he bestows on hustling out of his vicinity various predatory birds, especially crows and kites, for, being remarkably nimble in the air and very sharp of bill and claw, he can make himself respected by species of very much larger size.

Now in the Indian region, where the drongo is one of the very commonest birds, there also



KING-CROW

A common object on the telegraph wire in India.

Artamus leucorhynchus (H. & A. 1858, p. 100.)



INDIAN DRONGO-CUCKOO

The tail in this mimic is not so well forked as in the model.

Empidonax hammondi (Macleay, 1881.)

Mimicry in Birds

occurs a small black cuckoo with a forked tail (*Surniculus lugubris*), which at first sight is so like the king-crow that it may easily be taken for it, the pair-toed feet of a cuckoo not being a point which is likely to be noticed unless the bird is actually in hand or very near. As drongos have been seen feeding the young of this cuckoo, it presumably lays its eggs in their nests, which would be an excessively risky proceeding for a bird which they could easily recognise as not one of themselves. As it is, the cuckoo gets found out at times, for some drongos have actually been seen to peck one of these birds to death.

In spite of this, however, it is probably of general benefit to this extra-fraudulent cuckoo to wear the livery of the "Kotwal" (superintendent of police), as the drongo is called in the Deccan; for at any rate the criminal classes are likely to treat him with more respect in the police uniform than if they could see he was only a poor vagabond cuckoo with the usual weak bill and feet of his family.

The parasitic cuckoos have, indeed, a general tendency to look like something else—generally a hawk, as is well known to be the case with our own familiar species. But an equally familiar Indian cuckoo carries the hawk-like appearance much further. This is the bird well known, and thoroughly disliked, as the

Ornithological and Other Oddities

brain-fever bird (*Hierococcyx varius*); its note resembling the word "brain-fever," repeated time after time in a continually higher key.

Now the brain-fever bird is the most wonderful feather-copy imaginable of the Indian sparrowhawk or shikra (*Astur badius*). All the markings of the hawk are reproduced in the cuckoo, which is also of about the same size, and of similar proportions in the matter of tail and wing; and both hawk and cuckoo having a first plumage quite different from the one they assume when adult, the resemblance extends to that too. Moreover, their flight is so much the same that unless one is near enough to see the beak, or can watch the bird settle and note the difference between the horizontal pose of the cuckoo and the erect bearing of the hawk, it is impossible to tell them apart on a casual view.

The hawk-cuckoo is parasitic upon the babblers, and it has been observed that when it appears these birds absent themselves as speedily as possible, so that it has every chance of depositing its egg, which is blue like theirs, in security. Moreover, like the drongo-cuckoo, it no doubt profits in a general way by resembling a bird much stronger than itself.

Dr. A. R. Wallace draws attention to the fact that one of the large ground-cuckoos of the East (*Carpococcyx radiatus*) bears a resemblance to a

Mimicry in Birds

pheasant, and suggests that this similarity is useful to the bird. But the resemblance is not very close, and as this cuckoo is not parasitic and has a very strong bill of its own, there seems to be no reason why it should not be able to maintain itself without a disguise.

Another set of small Eastern cuckoos have barred brown plumage, at any rate when young, which is much like that of young shrikes, and there are a cuckoo (*Penthoceryx sonnerati*) and a shrike (*Lanius tigrinus*) which always keep their zebra plumage. As shrikes are fierce little birds and uncommonly hard biters, and also wary and intelligent, the cuckoos may profit by wearing their livery.

In Madagascar we find shrikes copied by other Passerine birds, much as the orioles resemble the friar-birds. The shrike *Xenopirostris polleni* is exactly copied by the harmless Bulbul *Tylas eduardi*, and it is particularly noteworthy that both birds vary in the same way, the breast of each being indifferently white or buff.

Having considered the cases in which a weaker bird copies a stronger one, we may turn to the "aggressive" mimicry of harmless birds by birds of prey which would be given a wide berth if their real character were known.

The oldest known case of this kind is that

Ornithological and Other Oddities

in which a harmless insect-eating hawk (*Harpagus diodon*), inhabiting the neighbourhood of Rio de Janeiro, is copied in that particular district by a sparrow-hawk (*Accipiter pileatus*), which there has a reddish-brown wing-lining like its model's, but elsewhere a white one. This is a good instance, and there are several equally striking ones. In Celebes one of the fierce hawk-eagles (*Spizæetus lanceolatus*) exactly resembles in both young and adult plumages the harmless honey-buzzard (*Pernis celebensis*) of the same country.

In India a small but fierce eagle (*Hieræetus pennatus*) much resembles in size and colour the lazy carrion-feeding pariah kite (*Milvus govinda*), though it has not the forked tail of that bird.

Moreover, all round the world in warm climates are found the hawks of the genus *Elanus*, which, in their delicate grey plumage, long narrow wings, and lazy flight, most remarkably resemble gulls and terns. Mr. W. H. Hudson, in his delightful book, "The Naturalist in La Plata," mentions the resemblance of the *Elanus* to a gull, and says that the birds seem less afraid of it than of other hawks. And in India the species of *Elanus* found there (*E. cæruleus*) is called by the natives "Jungle Tern"; I have seen it myself, and

Mimicry in Birds

taken it for a tern at first sight, so similar is the colour to that water-bird's, and so different the slow swing of the pinions from the sharp decisive stroke one associates with the flight of most hawks.

As every falconer knows that half the battle is to get the hawk near enough to the quarry to prevent the latter having a long start, it seems very obvious that these deceptive birds of prey profit by their resemblance to more or less innocent species just as much as, in another way, appear to do the birds mentioned above as resembling creatures less liable to attack than the majority of birds.

As to the method by which these remarkable likenesses have been produced, I cannot agree with the theory current with regard to the similar cases in insects, that the resemblance of the mimic to its model was only slight at first, and was gradually perfected by the escape from destruction of those specimens which exhibited it in the greatest degree, until, by the continual preservation of such and their descendants, the resemblance was, so to speak, bred into the mimicking species. This seems to me to require too many mistakes on the part of the other creatures concerned, and I much prefer Darwin's view, that mimicry must have commenced between forms pretty much alike to start with, so that

Ornithological and Other Oddities

natural selection was only needed for the finishing touches. Thus it may be doubted whether, in the case of birds, the resemblances, though probably useful enough now, were not altogether accidental to start with, for there are just as many startling resemblances where no theory of mimicry will suffice; the birds do not even live in the same country in many cases.

Thus, as Sir Walter Buller and Mr. F. E. Beddard have pointed out, the one in his work on the "Birds of New Zealand," and the other in "Animal Coloration," the large cuckoo of New Zealand (*Urodynamis taitensis*) is indeed very like a hawk, but the species it most resembles is not a New Zealand one, but Cooper's hawk of North America (*Accipiter cooperi*)! And it may be added that our own cuckoo more resembles some of the tropical hawks of the genus *Baza* than any British hawk. Several kinds of *Baza* have the plain grey breast of the cuckoo, and they are even called "cuckoo-falcons" from their resemblance to that bird, while the English sparrow-hawk is barred on the breast; the barring on the cuckoo not reaching up so high, which renders its likeness to that hawk decidedly imperfect.

The great skuas (*Megalestris*) show a singular resemblance to birds of prey in their dark-brown plumage streaked with tawny on the neck, which



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SOUTHERN SKUA (p. 62)

Showing the eagle-like plumage of this predatory Antarctic gull



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INDIAN CRIMSON TRAGOPAN (p. 179)

These Tragopans are often mis-called "Argus" pheasant

Mimicry in Birds

recalls that of many eagles, while the white patch at the base of the primary quills reproduces the similar marking in buzzards. Yet these are fierce predaceous creatures themselves, so that the resemblance is pointless; besides which, two of the four known species live where they themselves are the only birds of prey.

The remarkable plumage of the male American red-winged troupials (*Agelaius*) is well copied by the male of a shrike (*Campephaga phoenicea*), which has the same black body-colour and scarlet epaulettes, but, as it lives in Africa, cannot profit by the resemblance. It is true that several African weaver-finches show the same style of coloration, but if the shrike (not one of the more predatory forms) mimics these, what do the American troupials mimic?

Many of this same troupial family (*Icteridæ*) bear a great resemblance to orioles, having the black-and-yellow pied plumage which characterises most of those birds; indeed, they are commonly called orioles in America. Orioles, however, they are not, but close allies of the starlings and weavers, and none of them occur in the Old World, nor any orioles in America.

One of the American finches, the red-eyed bunting or towhee (*Pipilo erythrophthalmus*) bears a close resemblance to the Indian robin-like bird known as the shama (*Cittocincla macrura*),

Ornithological and Other Oddities

both birds having long tails and short wings, black upper plumage and chestnut flanks ; while in the hens of both the black upper-parts are replaced by brown. The resemblance is quite near enough for mimicry, yet under the circumstances it can be of no avail, even if there were any reason why one of these species should imitate the other.

Several other less striking instances of this false mimicry could be given ; thus, the American oven-bird (*Furnarius rufus*), made so familiar to us by Mr. Hudson's works, exactly resembles our nightingale in plumage, although a bigger bird and rather differently shaped ; while our magpie is well copied in colour by two much smaller birds, the dhyal or magpie-robin of India (*Copsychus saularis*) and the magpie-tanager (*Cissopis leveriana*) of South America. Moreover, the beautiful starling of the Andamans (*Sturnia andamanensis*) so resembles a gull in the arrangement of its colours,—white body, grey back, black quills, and yellow bill and feet—that *if* only it were bigger, and *if* gulls were common in the seas around its home, it might be set down as a mimic too !

Our common domestic birds show by their casual variations the great changes in appearance, by variation alone, which might produce under favourable circumstances a serviceable mimetic

Mimicry in Birds

resemblance; thus the common fowl often exhibits a variety in which the body is white and the primary quills and tail black, a coloration very characteristic of many large and powerful birds.

Applying this to the stock case of the orioles, we may compare the hypothetical ancestor of these birds with the known canary. This bird is normally, in its wild state (and often in domestication), of a streaky olive-green, somewhat like the young of many orioles; it frequently produces a cinnamon form, and (very rarely) a brown one, which may be compared to the mimicking orioles, and every one knows its yellow and pied variations, one of which, the nearly-extinct "London Fancy" breed, has dark quills and tail, and so very closely approaches the golden oriole's plan of coloration.

Now there is one oriole, the Australian *Oriolus viridis*, which is throughout life green and streaky, and may be taken as representing the ancestor; and this shows not the slightest resemblance to the common Australian friar-bird (*Tropidorhynchus corniculatus*), which has the usual snuffy-brown of his relatives, and a head altogether bald and black; in fact he is the typical friar.

He is evidently a hopeless model for the green oriole, although as warlike, and therefore as desirable in that capacity, as the insular members

Ornithological and Other Oddities

of his family; but even if a brown variation occurred in Australian orioles they would have nothing to pass off as the friar's bald black head. Possibly, too, the brown variation has never occurred, so the orioles have to get along on their own merits. The mimicking species in the islands farther west have evidently been more fortunate, as the friar-birds there not being bald-headed, their garb was more easily counterfeited.

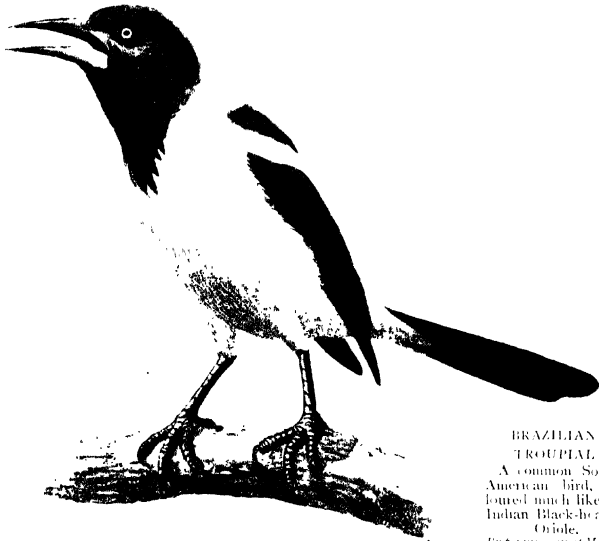
Farther west again the range of the friar-birds ceases, and here the orioles blaze out in black and gold, and even black and scarlet; nature not having bred them to a dingy model, the natural tendency of a green coloration to sport into yellow, and of brown to produce red (as shown in the brown Kaka parrot (*Nestor meridionalis*) of New Zealand), has had free play. It is noticeable that these richly-coloured orioles have longer wings than the dull mimetic forms, so that increased power of flight has evidently proved an ample means of protection where there was no chance of shuffling. Indeed, in Yarkand, golden orioles (*Oriolus kundoo*) have been seen to drive off a big jungle-crow as boldly as the friar-birds which their shabby relatives copy.

As a further instance of the essentially fortuitous character of these resemblances, attention may be profitably directed to the particularly beautiful one



INDIAN BLACK-HEADED ORIOLE

This beautiful bird is one of the commonest species in India.
By permission of Messrs. Hutchinson & Co.



BRAZILIAN
 TROUPIAL

A common South-
 American bird, col-
 oured much like the
 Indian Black-headed
 Oriole.
*By permission of Messrs.
 Hutchinson & Co.*

Mimicry in Birds

of the brain-fever bird to the shikra. We can see why it pays this cuckoo to look like the hawk, but there is a very curious little point which makes the fortuitousness of the "mimicry" almost certain. Many hawks have a little tubercle just inside the nostril, and this is reproduced in the brain-fever bird. But setting aside the improbability of a terrified bird stopping to notice whether the object of its fear had tubercles in the nostrils or not—in which case, too, it could not fail to see the different beak—it so happens that the shikra itself does not possess this little nasal prominence! Thus the possession thereof by the cuckoo is a mere chance coincidence, and if this be the case with such a small detail, why may not the resemblance of plumage and form be so likewise?

As a matter of fact, the cuckoos as a family are very prone to show resemblances to birds of prey. For instance, a common Indian non-parasitic ground-cuckoo (*Centropus sinensis*), whose want of resemblance to a hawk when adult may be judged from its popular name of "crow-pheasant," is usually, when young, barred across with black and white and black and brown, and with its strong curved bill and bright eyes distinctly recalls a young bird of prey. Here, then, we have the requisites for a case of mimicry. Not all young crow-pheasants have the barred plumage; some are black with brown wings,—simply duller

Ornithological and Other Oddities

editions of their parents—and if it were advantageous for this strong and plucky bird to resemble a bird of prey, no doubt these precociously-plumaged youngsters would be killed off and only the barred ones survive, until the barred young plumage was the only one found. As this is not the case, we may assume no mimicry is necessary.

It should, however, be observed that there is no gradation between the two forms, and so, if the barred plumage became of mimetic value, it would have done so without the gradual evolution of a more and more marked resemblance insisted on by entomological theorists on this fascinating subject, but by the natural utilisation of a resemblance already existing; for a barred plumage in young cuckoos is so very common that we may fairly take it in the crow-pheasant as the normal one, and the self-coloured young birds as more recent offshoots, since there is a strong tendency in birds for the young to drop their immature plumage and assume at once that of the adult when this can be done with safety.

That, although a merely general resemblance is enough to make an impression, details would need to be added in some cases, is shown by the fact that where it is a matter of life or death to birds to know one similar species from another, they can distinguish them even where there is a

Mimicry in Birds

considerable initial resemblance. Thus, the small kite-like eagle mentioned early in this article is distinguished at any rate by the house-crows and grey babblers (*Argya malcolmi*) of India. This bird would possibly succeed as an imitation of the kite if it had the forked tail of that bird, and then might expect to deceive some species, though crows and babblers would probably, from their social and raptor-hating instincts, give warning against the unusually vicious kite they would deem themselves to have discovered.

But all birds are not equally intelligent, as I found when experimenting with their tastes in regard to "warningly-coloured" butterflies and their mimics, and no doubt many a species, both in birds and insects, has had its fraudulent career as a mimic nipped in the bud by having to do with enemies or prey which were too observant to be long taken in by anything except an absolutely perfect imitation.

THE GOLDFINCH ABROAD

It is encouraging to those who love the goldfinch to know that this most charming of the finches has been acclimatised abroad, in countries inhabited by English-speaking people, with most gratifying success. To those who have followed the progress of acclimatisation, it is well known that goldfinches were among the species which thrived best when many English birds of different kinds were liberated in New Zealand a quarter of a century ago; and they are now so abundant there that a bird-catcher can go out and catch fifteen dozen in a morning. It is noteworthy that no complaint has been lodged against the goldfinch in New Zealand, while the sparrow, yellowhammer, and greenfinch are there deemed such nuisances that they were recently proscribed by name in the Legislature of the colony. In Tasmania, also, it appears that the goldfinch is doing well, being, according to Mr. F. M. Littler of Launceston, in that island, the next best-known imported bird after the sparrow. The goldfinch has been in Tasmania for about twenty years, and is numerous in Hobart and the surrounding country, going at times in flocks of forty and

The Goldfinch Abroad

fifty. Although not so numerous in the north of the island as in the south, it is increasing rapidly round Launceston and the suburbs, even breeding in gardens when undisturbed. It is reported as a very beneficial bird, owing to its habit of feeding on scale insects and other pests of trees; the goldfinch being, like finches generally, insectivorous to some extent, though its main utility has always been supposed to lie in the destruction of the seeds of thistles and other weeds of the composite order of plants. This case, therefore, is particularly interesting as showing how a species may be unexpectedly beneficial when introduced into a new country. Since Mr. Littler wrote, the abundance of the goldfinch in Tasmania has been testified to by Mr. Dudley le Souëf, the Director of the Melbourne Zoological Gardens, who also says that the bird is exceedingly plentiful in the southern parts of Victoria, especially in gardens round Melbourne and Geelong; indeed, it even nests in suburban streets in the latter city, frequenting the roadside elms and other trees for this purpose.

In North America the goldfinch has been introduced with much success. Mr. H. Nehrling, writing in 1896, stated that the bird had then been successfully naturalised a number of years ago, and bade fair to become quite plentiful in and near New York, Hoboken, Boston, Cam-

Ornithological and Other Oddities

bridge, and Worcester in Massachusetts; also in parts of New Jersey, and about Portland and other localities in Oregon, especially in the last-named, while he thought its naturalisation probable in St. Louis and Cincinnati. The birds had been introduced in small numbers at all the places mentioned, and they must still be doing well, for Mr. R. Ridgway gives this imported species a place in his systematic work on the birds of North and Middle America; mentioning, in addition to its United States habitats, the occurrence of specimens in Toronto and Ontario, and the fact of its naturalisation in Cuba.

In the West Indies the goldfinch has another footing beside that island, its introduction in this case being accidental. Mr. D. W. Prentiss, writing about the same time as Mr. Nehrling, mentioned that a number of these birds escaped from a vessel in St. George's in Bermuda in 1893, and had multiplied rapidly, so as to be quite common about Walsingham and Pointer's Vale; he had seen a flock containing more than two dozen. This accidental occurrence of the goldfinch is a case, apparently, of bird-history repeating itself, for long ago canaries got naturalised in Elba by escaping from a ship, although they were ultimately all caught up after they had become established.

Last of all, the goldfinch has turned up in a

The Goldfinch Abroad

wild state in South Africa; in this case also, apparently, by accident. It seems that Mr. Barton, a soldier of the Suffolk Regiment, when returning from the late war, brought with him two goldfinches which he had caught himself when in the Transvaal, on the hills at Heidelberg. He found them common halfway up these hills, and evidently breeding, since one of his birds was in immature plumage—what our bird-fanciers call a “grey-pate”—when captured. Mr. Barton had also caught in the same locality some canaries, which Mr. E. A. Butler, who communicated these facts to the *Zoologist*, could not distinguish from ordinary variegated domestic birds. This looks rather like an accident to somebody's aviary, or perhaps the owner of one, foreseeing the political disturbances, had given his birds their liberty lest they might lack proper attention. The editor of the *Zoologist*, Mr. W. L. Distant, states that in four years in the Transvaal he had never heard of goldfinches in the wild state, and that a friend of his in Pretoria found them difficult to keep for any length of time even in an aviary; so that this introduction is the more remarkable. It is to be hoped, in any case, that the goldfinches will thrive as well in this part of the Southern Hemisphere as they have further to the east in Australasia.

Ornithological and Other Oddities

I am somewhat surprised at this difficulty in keeping goldfinches in Pretoria, for these birds thrive well in captivity in India, even in a cage, and they are not unfrequently imported, being obtainable in Bombay as cheaply as in England at times. These birds come, I believe, from Malta, but from whatever locality he reaches India, the goldfinch exhibits remarkable indifference to the heat when he gets there. I have never seen the captive goldfinch panting, even when the native birds were in many cases going about the gardens with their mouths agape. The crow and the sparrow in Calcutta most eloquently testify their feelings in this way, and even the coppersmith-barbet, an unblessed harbinger of the hot weather, has at times to confess himself overcome by the warmth he is supposed to enjoy.

This tolerance of heat, however, combined with an indifference to cold which is well known—so many goldfinches wintering in England—is no doubt one of the causes which have favoured the artificial spread of our “proud-tailor”; and his species must be a successful one in the struggle for existence, as in many countries where it naturally occurs it is very common. Of course, the scarcity of goldfinches in Britain is chiefly due to the operations of the bird-catcher, and it would be well if the bird could be perpetually

The Goldfinch Abroad

protected here. Any one who wants goldfinches should buy the large and beautiful birds imported freely from Siberia in the winter, and now costing in many cases little more than home-caught birds, though far superior in beauty. Moreover, as it has been repeatedly proved that goldfinches will breed in captivity, a tame strain could probably be raised with little trouble if a dearth of captured birds gave a stimulus to "the fancy" in this regard.

We should not, however, be too severe on the captors and gaolers of goldfinches, since it is through them that the extension of this delightful bird's habitat has come about; and, so long as English goldfinches are caught and sold, it would be worth while to spread them further yet. The Argentine, with its great thistle-beds, would seem an ideal field of emigration to which many a worthy goldfinch, hard pressed by high farming and weedless fields, might be assisted, his family's history as emigrants being ample guarantee that he would not abuse the privilege. The goldfinch, as I have heard remarked more than once, always looks like a gentleman, and he evidently behaves accordingly, not repaying a fresh start in the world with base ingratitude, like that ruffianly hooligan, the sparrow. "Philip Sparrow" has had far more assistance in emigration than "King Harry Redcap," but New Zealand, Tasmania,

Ornithological and Other Oddities

Australia, the States, and Bermuda all cry out upon him as altogether unprofitable; which teaches the lesson that it is not acclimatisation which is to be visited with the condemnation it usually meets with nowadays, but the injudicious selection of species which has too often been made. For no better test case could be found than the history of the foreign careers of the expatriated sparrow and goldfinch, although, as usual, we hear more of the ill done than the good.

BIRDS IN THE MOULT

THE periodical loss and renewal of their feathering, indispensable as it is for the beauty of birds and the effectiveness of their wings, is undoubtedly for most of them an infliction with which they would probably be glad to dispense were that possible. During the time they are shedding their plumage they are evidently weak and depressed ; the songsters are generally silent, and some of the brighter-hued and highly-decorated species seem almost to feel their shabby condition. The golden pheasant loses his activity with his ruff and tail, and the mandarin drake, although nature gives him a new, if sober, coat of feathers at once, loses not only his pride, but also his love for his mate, as if he were afraid to look her in the face when not in full dress. The physical strain caused by the moult also renders birds liable to succumb to the influence of bad weather, such as cold or wet ; and, of course, their more or less impaired flight is always a source of danger. It is on the moulting lark that the merlin is let fly by falconers with the greatest hope of success. Under the circumstances, then, it is not sur-

Ornithological and Other Oddities

prising that a quick moult is desirable, as bird-fanciers have long ago found out; and hence there is a widespread tendency in birds to moult as fast as possible, whenever their safety allows of it. It is obvious, however, that birds which are much on the wing cannot moult in too wholesale a manner; such usually, therefore, shed their quills in pairs only, which means a rather protracted moulting season. In other cases, as where much ornamental plumage is worn, this may all be thrown off at once, as in the case of the golden pheasant and mandarin duck already mentioned, and equally conspicuously in the peacock. I have even heard of a case in which one of the last-mentioned birds was seen to help on his moult by plucking out his own train-feathers.

Even the wing-quills may all be discarded together, and flight dispensed with for a time; but this is obviously only possible in certain exceptional cases, usually among water- and marsh-birds, which are under less apprehension of danger from quadruped foes than inhabitants of the dry land. Thus we find a complete moult of all the quills in rails, grebes, and cranes, in some species at all events; while the state of flightlessness to which the duck and goose family are reduced by this means has long been common knowledge, owing to the pernicious custom,

Birds in the Moul

obtaining at different times and places, of hunting the unfortunate birds at this period of their helplessness. According to my observations, the quills undergo this wholesale shedding in small as well as in large species, in the tiny cotton-teal or pigmy goose of India (*Nettopus coromandelianus*) as well as in the powerful swan; so that defence cannot be relied upon in all cases. One member of this family, however, the curious magpie goose of Australia (*Anseranas melanoleucus*), moults its quills gradually like most birds; and as the half-webbed feet and well-developed hind toe of this bird, together with the very slight development of the characteristic straining apparatus in the beak, point to its being an ancestral form—a living link between the ducks and their unknown land-bird ancestor—it is probable that the wholesale moult is a late development. In connection with this it is interesting to note that ducks under unfavourable conditions of life—as when in very close confinement, and with clipped wings—will revert to the gradual method of shedding their quills; a clipped quill is always apt to cause trouble to a bird. The most wholesale moult, and that involving the greatest discomfort, occurs among the penguins. These curious birds, before moulting, become ravenous, and feed up well, but then fast until they are in full plum-

Ornithological and Other Oddities

age again, moping on shore in hungry misery. Their body feathers come off very freely, and the scaly-looking plumage of their flippers—it seems almost using a misnomer to call them wings—sloughs off in patches like the skin of a reptile. The female hornbill, also, immured for the breeding season in a hole in a tree, in some cases, at all events, takes the opportunity of changing her dress, and loses her quills and tail, thus breaking the general rule that birds do not moult till they have finished breeding; she can afford to do so, as her mate has to do the catering for her as well as for her young during her imprisonment.

One would expect that the great running birds, which cannot fly in any case, would undergo a wholesale moult of the wing feathers, but, as far as can be observed, this is not the case; so that in some cases, at all events, the opportunity of dispensing with a number of large feathers at once has not been taken advantage of by nature. The flightless rails of New Zealand, the wekas (*Ocydromus*), do, however, moult in this way, and so does our landrail; and this, again, makes us wonder why such a moult does not occur in the game-birds, which usually depend so much more on their legs than on their wings. One would think that the partridge could do without flying for a few weeks as well as its neighbour



WINING OWL p. 133



A MOUTHFUL OF NUT IN THE ZOO
A young owl perched at the Zoo

Birds in the Moul

the corncrake, living as they do under such similar conditions.

One very remarkable phenomenon which frequently attends the moult is the change of colour which then takes place. I do not allude to the regular alteration in appearance, such as the whitening of the ptarmigans and the numerous striking changes exhibited by such birds as the golden plover, which have distinct summer dresses, but to individual aberrations such as are not unfrequently seen in captive birds. Thus a valued albinistic, or otherwise abnormally coloured, specimen not unfrequently regains its normal colouring on moulting, much to the disgust of its possessor, as I have seen in India with white examples of the house-mynah (*Acridotheres tristis*). Dark varieties are also liable to revert in this way, there being a case on record of a black bullfinch which did so.

Among our familiar fowls it is interesting to note that the civilised rooster has, in most cases, lost a peculiar moult to which his ancestor, the red jungle-fowl of India, is subject. This bird, which exactly resembles the "black-breasted red" breeds of tame fowls in colour, loses the long orange-red hackles of his neck after breeding, and assumes for some time a covering of short black feathers on that part, which are

Ornithological and Other Oddities

at length replaced in their turn by hackles again. So rare is this change in the tame fowl that I have only seen it once, and then in a highly-modified breed, the Langshan; one would certainly have expected to find it in the little-changed common fowls of India, inhabiting the same country as their progenitor. It is true I saw this Langshan in India, but he had been imported from China.

Although, however, Chanticleer under the protection of man sees no need to go into undress, the case is otherwise with the drake, which still continues to undergo his double moult, losing all his glory of green-plush head and curled tail feathers when he sheds his quills, and then bearing till the autumn the sober dress of his partner, or at least a close approximation to it. This change, as is well known, befalls most males of the anatine family when they wear a much more conspicuous dress than their consorts; it obviously makes for protection, and it is rather significant that the most striking exceptions to it occur in South America and Australia, the rosy-billed duck (*Metopiana pepo* *saca*) and upland goose of the former continent being examples among familiar fancy water-fowl. But these zoological regions are believed to be the scene of a less rigorous struggle for existence

Birds in the Moul

than others, judging from the more archaic nature of their fauna ; and thus it is, perhaps, that a moulting drake can there afford to wear a livery which in more strenuous competition would prove his ruin.

THE RAVEN OF THE PAMPAS

SIR RALPH the Raven has a wide domain. From Greenland to Mexico, and from Iceland to North-West India, he is to be found, black and black-guardly everywhere; and in those parts of the world where he is not present in person, he seems to have deputed his power to some member of his family—such as the jungle-crow in the Far East, and the white-eyed crow in Australia. But there is one great continent where neither raven nor crow, large or small, has a footing, and that is South America. Jays there are, wherever there is forest or woodland to give their slinking, pilfering ways a chance; but the true crows, black and bold freebooters of the open country, are nowhere found.

Now, as South America presents an admirable variety of climates and situations, to say nothing of business opportunities in the way of carrion and small weak forms of animal life, it would seem that the only obstacle to corvine immigration there has been what scientists call the organic barrier; in other words, previous settlers have “jumped the claim,” vast as it is.

For ordinary hawks—falcon, harrier, and buz-

The Raven of the Pampas

zard—the crows care little. The black tribe are not good eating; they are strong on the wing, hard fighters when brought down, and they are too strong in *esprit de corps* to be attacked with impunity. I used to know a peregrine falcon in Calcutta who had, when he first took up his residence in the cold weather—falsely so called—to put up with a lot of vulgar abuse from the local crows; but he never offered to cut one down, an event I used to sincerely hope for. But there is a clan of hawks in South America—the sub-family *Polyborina* of ornithologists—which have far too large a dash of the crow in their own composition to be lightly dealt with by the black brigade. And chief of these, taking the place of the raven in the North, is the caracara, or carancho (*Polyborus brasiliensis*), which ranges from the Southern States of the Union to beyond the Straits of Magellan. It is a fine handsome bird, equalling, or exceeding, its corvine rival in size, and standing high on its legs. Its handsomely barred plumage of black-brown and cream-colour sets off its proportions, and its large strong bill is of a delicate French grey, contrasting well with the bare face, which, as mentioned in the chapter on “Blushing Birds,” is pink or yellow, according to circumstances. The young birds in their first plumage are less striking, being of a dull brown colour, with

Ornithological and Other Oddities

complexions of a livid mauve; but the carriage is always noticeable, as the bird moves easily and gracefully on the ground, instead of hobbling awkwardly as hawks usually do.

For the caracara is, in respect of his feet and their use, only half a hawk. Compared with the long toes and exquisitely tapered talons of the falcons or goshawks, his somewhat fowl-like feet seem decidedly ineffective weapons, and his method of employing them is in correspondence with this structure. When taking anything off the ground, he does not seize it with his feet like the hawk tribe generally, but picks it up with his bill like a crow or a gull, though he will afterwards drop it and catch it in his talons without interrupting his flight. Mr. W. H. Hudson, the well-known chronicler of the lives of the Pampas birds, has even seen a live rat treated in this way, risky as the method might seem; and when, in the Calcutta Zoological Garden, I offered a rat to a bird there, he, after clawing at it ineffectively, picked it up by the tail with his bill in the most amateurish way. When attacking a bird in the air, however, it uses its claws like other hawks, and Mr. Hudson has seen such active species as the domestic pigeon, the spur-winged South American lapwing, and the white egret captured by it. In the last case, four birds, two adult

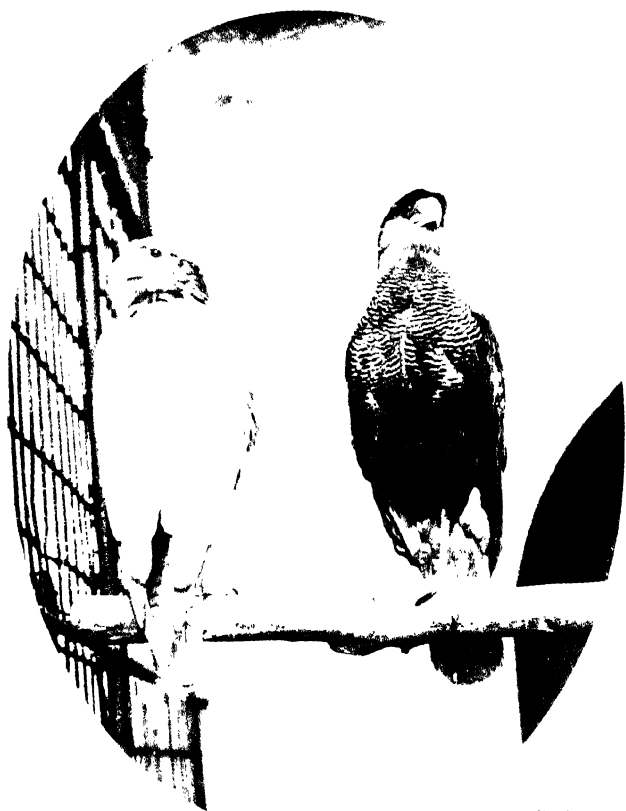


FIG. 1

PLATE II

CARACARAS
Normal form and pale variety

The Raven of the Pampas

and two young, united in the chase, for it is one of the peculiarities of the caracara that, like the crow tribe, it appreciates the advantages of co-operation, being more sociable than the nobler hawks. Its general disposition, according to the various good observers who have recorded its ways, is certainly remarkably like that of the corvine birds. Like them, it is essentially a waiter on opportunity, a persecutor of the weak and the wounded, and an unfailing attendant at the obsequies of any beast which may perish in its vicinity.

Like our hooded crow, it is ever ready to devour the sportsman's game if he leaves it in its reach, and its attacks on young lambs and weakly sheep bring on it the same retribution which falls on the crow and raven elsewhere. Don Felix d'Azara's words about it, "All methods of subsistence are known to this bird; it pries into, understands, and takes advantage of everything," are just such as might be applied to any crow which is sufficiently well known; and it is particularly interesting to find a recent naturalist, Mr. E. Gibson, mentioning that the carancho has little fear of man when not in possession of a gun, making bold, under these circumstances, to attack a lamb quite close to the shepherd. On one occasion Mr. Gibson was collecting egrets' eggs, and found that a

Ornithological and Other Oddities

carancho actually followed him about, attacking the eggs as the birds were driven off their nests, and refusing to be driven off itself until hit by the butt-end of a knife flung at it by the exasperated oologist. This intelligent and irritating grasp of the situation exactly recalls the behaviour of the house-crow of India, which is positively insolent as long as one is unarmed, but knows and fears a gun; and a similar wisdom in our rooks at home has given rise to the saying that they can smell powder.

Of course, with a character of this kind, it is a foregone conclusion that the caracara should be a determined enemy to young birds. Mr. Hudson gives a pathetic instance wherein a rhea—the South American ostrich—having left the young it was brooding to charge a passing horseman, found on its return the little things being mercilessly slaughtered by these carrion-hawks, which had been waiting all along for some such opportunity. This continual watchfulness is exemplified by the caracara's well-known habit of settling near when it observes a man sleeping on the Pampas, in the charitable hope that he will never wake up again! And the same gloomy anticipation occurs with the raven, which it is said to be possible to decoy within shot-range by lying down and feigning death.

In voice the caracara is not at all crow-like,



The Raven of the Pampas

though his humbler relative in the Falklands, there called the jack-rook, has a distinct caw, which, with its black plumage, has no doubt gained it its colloquial name—by naturalists it is known as Forster's milvago. The caracara's note is a harsh double croak, sometimes prolonged into a cackle, during the utterance of which the vocalist turns his head back till the crown touches his back. I have seen the specimen at Calcutta already alluded to let off his exuberant spirits in this way when his foot was grabbed by a worthy old eagle next door whom he was tormenting, and in this case I took the note for a laugh of defiant glee. The bird is also noisy when attacking, at any rate at times, so that although his language is different, his freedom in its use is more suggestive of the voluble crows than the silent and dignified hawks.

Every observer seems to feel some pleasure when a bird of the crow or caracara type gets worsted in one of his predatory adventures, and Mr. Gibson relates two such cases in which Don Carancho distinctly came off second best. In one, a half-grown nestling of the Maguari stork, which had been tethered, was attacked by half-a-dozen caracaras, and was found bravely keeping them all at bay, and now and then getting home a thrust with his powerful bill. On the other occasion the hawk was seen to be following a

Ornithological and Other Oddities

skunk, which meandered along with its tail erect and in its usual happy consciousness of pestiferousness. The pursuing bird, although it was following closely on foot, evidently had its doubts as to what would be the result of its meditated attack, but at last opened the fight by the decidedly unskilful method of grasping the skunk's tail. The assaulted beast, of course, at once opened fire with its scent-glands, and as its discharge is as objectionable to most animals as to man, the unhappy caracara had excellent reason to remember skunks for the future.

In managing its domestic affairs the caracara shows the foresight and tenacity which might be expected of it. It remains constant to the same locality for many years, using a tree as a nesting-place if one is available. But as it is most in its element on the open Pampas, it often has to forego this elevated situation, and then is wise enough to build on a small islet if one is available, though, of course, such a convenience is not always to be had, and the open ground has to receive the bulky collection of sticks, bones, and rubbish which does duty for a nest. The birds, though they will keep about when the nest is robbed, will hardly ever actually attack, in this strikingly recalling the raven, which also will usually face any foe but man under similar circumstances.

One final point of correspondence between

The Raven of the Pampas

these two remarkable birds deserves notice. The raven, as every one knows, is not always absolutely constant to his sable plumage, like so many black birds, and in the Faroe Islands a pied variety used to be constantly present in small numbers, though now apparently extinct.

The caracara is also subject to albinism, a form in which the usual brownish-black is replaced by pale grey being sometimes met with. There is one such bird at present in the Zoological Gardens, and others have been exhibited there. Now Mr. Durnford, working in Patagonia, found pale-coloured caracaras unusually common there, although he did not observe such specimens in Buenos Ayres. Thus it would seem that in both cases the abnormally pale plumage tends to be locally limited.

As both raven and caracara bear captivity well—one of the specimens of the latter at the Zoological Gardens having lived there for twenty years—and will live in the same aviary, it ought to be possible for any Zoological Gardens to furnish the entertaining spectacle of these two amusing and unscrupulous birds playing off their respective intelligences against each other. And now that our London institution is extending the system of large aviaries, it may not be too much to hope for that the experiment may yet be made in Regent's Park.

FOREIGN CAGE-BIRDS AT HOME

MANY keepers of the beautiful foreign cage-birds now so freely imported have doubtless wished to learn something of their life and habits in a wild state—a wish not so very easy to gratify, since writers of books on birds intended for the general public have a marvellous knack of avoiding such species in making their selection of those to be written about. It may therefore not be deemed out of place if I give a few notes on some birds, more or less familiar in our cages and aviaries, which I have had the pleasure of meeting personally in their natural surroundings.

The opportunity of doing this first occurred to me fourteen years ago, when I was in East Africa for a few weeks, part of the time being spent in Zanzibar, and part in Mombasa—then a very much less important place than it has since become.

What at once struck me in Zanzibar was the abundance of our good friend, the Java sparrow, which was to be seen commonly all about the town. Here, as in several other Eastern countries, he was only a colonist, having been turned loose about thirty years before my time. The

Foreign Cage-Birds at Home

locality evidently suited the birds, though what they fed upon I never found out, as they did not come down into the streets as our sparrow does ; possibly they went out into the country for their meals, for the Java sparrow has a strong swift flight, and travels much faster on the wing in the open than one would be apt to suppose from observing his somewhat heavy make and movements in a cage.

As an ornament to the buildings about which he breeds in cracks and crevices, the Java sparrow is a great success, and his sweet liquid chirp is much more pleasant to the ear than the harsh notes of the real "spadger." So pleased was I at the sight of him in the capacity of citizen, that when, years afterwards, I went to live in Calcutta, I tried to introduce him there.

But nearly all the birds I turned out always went off at once, and though an odd one, probably not so strong on the wing, or a casual "escape," might be seen about the place for long periods at times, the birds persistently refused to colonise. As all the building-sites are well taken up by the house sparrow, it is very possible that their attempts to do so would have ended in failures. Once, however, I saw four birds together, in lovely condition, on a bamboo bush, so some may have stayed about away from the houses ; and as I have heard of them in the

Ornithological and Other Oddities

Calcutta suburbs, it is possible they may be becoming established, as they have been for many years in the Madras district. Speaking of the Java sparrow, I may mention that a gentleman I once met, who knew the bird well and had been in Java, told me that he had only seen three there, so that it would seem not to be much in evidence in its native country.

Outside the town in Zanzibar might be seen weavers and mannikins, but I was not in a position to identify the species, though I once noticed a specimen of one of the orange and black kinds of "bishops" among some reeds. When I got to Mombasa I found only three Java sparrows, which some one had turned out, but I have since heard the species has much increased. But there was another cage-bird much in evidence at the more outlying bungalows at Mombasa which it gave me much pleasure to see at large. This was the cordon-bleu (*Estrela phœnicotis*), that dainty little fawn and sky-blue waxbill so much admired by all fanciers of tiny finches. These little things were not so very abundant, but caught the eye at once, as they hopped about in pairs on the ground, much after the fashion of our hedge-sparrow; no doubt, like that bird, they were feeding on small insects and seeds.

A beautiful weaver, of which the male was yellow with an orange head (*Hyphantornis*

Foreign Cage-Birds at Home

bojeri), was the commonest bird in Mombasa, though the dull greenish females and young were naturally more numerous than the full-plumaged cocks. This, however, was not then in the trade, and I do not know that it has been imported since, so I merely introduce it here to show how one may miss a good thing. Seeing these beautiful and showy seed-eating birds all about the place, I naturally thought they would be in the possession of many dealers at home, and so I did not trouble to keep any, although a fledgling once actually flew into the bungalow where I was staying. But when I got home I found to my great surprise that not only was the bird, as I implied above, not to be had of the dealers, but was so little known even to professional scientists, that they had not got the female in the British Museum collection. Moral—don't despise the common birds of a country unless you know all about them. I did not see these weavers feeding on the ground, but often observed them on low vegetation; their nests were to be seen hung on the fronds of palm-trees even among the native huts, several together, as is the general custom of the weaver group. These nests were rounded in shape, with an entrance hole, but no tubular passage thereto as in some of the nests built by birds of this family.

The half-collared turtle dove (*Turtur semitor-*

Ornithological and Other Oddities

quatus) was common on the mainland opposite Mombasa Island, but I did not notice anything particularly interesting in its habits. It is a large dove, much resembling the familiar domestic species, but darker in colour, with a fine pinkish tinge on the neck and breast. The late General Matthews, who most kindly interested himself in my pursuits, gave me a large number of these birds in Zanzibar, some of which I presented on his behalf to the London Zoo, while others I gave to St. James's Park. These latter, about a dozen in number, were confined in one of the compartments in an aviary on the island back of the keeper's house, which is used for the occasional accommodation of birds. Here they were kept till in perfect condition, when they were liberated. They stayed about for some months, and then disappeared, and, what is indeed curious, none were ever shot and reported as "rare occurrences." During their captivity, one of them produced two curious hybrids with a white-and-black cock domestic pigeon; these were blue in colour, with no distinct markings, but a pale band at the end of the tail, in which colour-points they resembled the dove parent. I doubt if any one could have divined their origin at first sight.

To return to the foreign cage-birds in their own haunts. I did not see much more in this way in Africa, so that it was not until I took up

Foreign Cage-Birds at Home

a post in the Indian Museum, Calcutta, in 1894, that I gained much more experience. In the first place, I was rather surprised not to see the familiar cage-birds of India about the gardens. I did not land in Bombay, or I should have found the ring-parrakeet a very common bird even in city trees, as I did later on. In Calcutta this parrakeet is, indeed, no rarity, but it is not very noticeable except in the winter months, and then is not abundant. It is, however, one of the commonest birds in India generally, and in journeys by rail I often saw it perched on the telegraph wires. In the beautiful district of Dehra Dun, I used also to see the lovely little plum-headed parrakeet, with its swift flight and musical call, while I now and then viewed the large "rock parrot," which bears much the same relationship to the ring-neck as the missel-thrush does to the song-thrush. The flight of parrots is very surprising to any one viewing it for the first time. It is very swift, and the wings are pointed downwards and moved quickly, the bird also rolling from side to side frequently—it is, in fact, the flight of a shore-haunting wader rather than that of a land bird. Few creatures are so active and joyous as wild parrots, and I always feel quite as much sympathy for a caged parrot as I do for the much-pitied skylark, which after all is a thorough groundling when he is not singing.

Ornithological and Other Oddities

Although the bulbuls are not very common as cage-birds, they are yet well known to aviculturists ; and I found two of them among the most widely-spread and characteristic birds in India. They especially frequent gardens, and their graceful movements and sweet liquid notes make them most pleasant neighbours. In Calcutta the two common species were the Bengal bulbul, with its rich dark plumage and scarlet undertail-coverts—replaced in some places by allied species of rather lighter colour ; and the jaunty peak-crested red-whiskered bulbul, whose pure white breast makes him quite as noticeable as the other species, although this is larger. The big dark bird was much the commoner in Calcutta, but during the last year I was there (1902), I certainly saw many more of the red-whiskered species. The bulbuls keep chiefly to trees and bushes, seldom visiting the ground ; they feed mainly on berries, eating them even when green, but the young are fed on insects.

The dhyal, with his magpie suit of black and white, I had seen at a show at home, and soon found that in India he took the place of our robin at home, being like that bird, widely spread, but not numerous, and much attached to the neighbourhood of man. These pretty birds were particularly common on Ross Island, in the Andamans, where, in the morning, the air

Foreign Cage-Birds at Home

was full of their songs. I did not notice their music much in Calcutta, where, if the birds had been far commoner, the cawing crows and squealing kites would have silenced them; but of course they sang at times. The shama, though a common captive in India, is, when wild, a shy woodland bird, like our nightingale, and I never met with it in that state.

The most familiar to home bird-lovers of all Indian "soft-bills" is, however, the *liothrix* or Pekin robin, and when I first visited his haunts in the Himalayas—it was at Darjeeling—it was not long before I heard the pretty five-noted call which betrayed his presence. Judging from the frequency of the sound, the birds were very common, but they are much more likely to be heard than seen, being of a retiring nature, much like our hedge-sparrow; while their colour, gay as it looks in a cage, is well adapted for concealment. Every now and then, however, one of the pretty birds would show itself in a tree, or flit to a roadside fence, so that the beauty of its coral bill and orange-streaked wings could be well observed; but, on the whole, the species cannot be called a conspicuous one, even where it is numerous.

Finches, with the exception of the common house-sparrow, are not very noticeable members of bird society in India. Once only did I see

Ornithological and Other Oddities

the avadavat in the wild state, when I saw two cock birds in some long grass, far away from any habitation. Yet, in the Tiretta Bazaar, the bird-market of Calcutta, may constantly be seen scores of the little red, white-dotted fellows and their brown mates, for numbers are captured for sale. So with the other little finches. I once observed a few of the little drab Indian silver-bills coming down to drink at a singularly filthy little pond, and I seem to recollect once coming across the black-headed mannikin. With the spangle-breasted nutmeg-bird, or spice-bird, I met more frequently. Some nested in the grounds of the Forest School at Dehra Dun, in which district I met with the other finches I have mentioned. In travelling by rail, also, one frequently sees trees ornamented with the curious hanging nests of the Indian weaver-birds, conspicuous from a great distance.

The starlings, unlike the finches, are very much in evidence in India. But here again, the species best known at home, the heavy black yellow-wattled hill-mynah, so renowned as a talker, is not a bird one is likely to come across casually ; I only once saw it, and that was in the Andaman Islands, where I recognised a pair on the wing. The mynah of India, *par excellence*, is the always charming house-mynah, a brown bird with yellow bill, face and feet, and black-

Foreign Cage-Birds at Home

and-white wings, which is not much imported. This is as much a follower of man as the sparrow, but a very much nicer bird, always well-behaved and interesting, without being too obtrusively tame. Of late years he has pushed his way up into the Himalayas, into quite a temperate climate, and he makes an excellent colonist when introduced abroad. On the whole, he may be taken as the most typical Indian bird, although popular ideas give that place to the green parakeet, which, however, as I pointed out before, is not so much in evidence everywhere.

COCK ROBIN'S COUNTERFEITS

LIKE many another well-known character, "Joly Robyn" has had his impersonators ; guiltless, however, of conscious fraud, for the false position that they occupy is not of their own seeking, but is the outcome of the fact that wherever it has established itself, the Anglo-Saxon race has tried to find in some exotic bird a representative of the little friend at home. Some of these, indeed, seem poor enough substitutes at best, for even the well-known red breast, which gives the home bird his true title, as distinguished from his better known nickname, is not always to be found in his foreign *locum tenens*.

Perhaps the best known of all these outlandish robins is one of those least appropriately so called, namely, the handsome thrush which bears the name of robin in the United States. This fine bird is very like our fieldfare, but has a plain orange breast instead of the speckled tawny one of our winter visitant from the north. He is a typical thrush in all his ways, as voracious a consumer of fruit as the English blackbird, and, being migratory, does not figure

Cock Robin's Counterfeits

as an enlivener of winter as he ought to do. As a matter of fact, however, the real European robin is a much greater traveller than is usually supposed, for many of his species leave for the south in the autumn, to be replaced by immigrants from further north.

The Yankee favourite is a fine songster, though his melody is, naturally, of quite a different type from our bird's, and more closely resembles that of the blackbird. He is like both that bird and the true robin in haunting the vicinity of human habitations, where he is often much annoyed by that very undesirable introduction, the house-sparrow, which is even impudent enough to filch from him the worms he has obtained.

Every one who loves birds and poetry must know Longfellow's lines in "The Birds of Killingworth,"

"The robin and the bluebird, piping loud,
Filled all the blossoming orchards with their glee,"

and the bluebird therein mentioned is another member of the thrush tribe, but one far more nearly related to the genuine robin than the larger species I have been discussing. That both the European robin and the American bluebird are really only small thrushes is proved by the fact that in their first or nestling plumage they are spotted like the young of the larger

Ornithological and Other Oddities

and more typical thrushes, as well as by many of their habits. The bluebird, however, has longer wings and shorter legs than our robin or thrush, and in accordance with this difference of structure is more addicted to feeding on flying insects. In other respects, however, he is marvellously like the former, having the same large dark eye and intelligent expression; he is also equally tame and ready to build about houses, although now too often ousted by the sparrow from the boxes put up for his accommodation. For, although he is an early migrant to the Northern States, arriving before the snow is off the ground, it is frequently his lot to find his domicile already in the possession of the ugly, worthless finch, which has stayed all the winter, and, secure in the proverbial "nine points" of the law, is ready to meet all comers.

In spite of his form, size, and familiarity, and of the redness of his breast, the beautiful azure of his upper plumage appears to have struck the early immigrants to the States more than any other point about the bluebird, and thus allowed his larger and less attractive rival to gain the old familiar name. But the English dealers, who used not infrequently to import the bluebird, always knew it as the blue robin; and it is gratifying to know that it will breed in captivity; indeed, I have seen a young bird of this species

Cock Robin's Counterfeits

which had been reared in the London Zoo. This readiness to accommodate itself to circumstances gives reason to hope that the blue-bird could be successfully introduced to other countries, such as New Zealand, where native insectivorous birds are few, and pretty, harmless exotics a desideratum.

It is true that in New Zealand there are two species of robin already ; though, as neither has a red breast, or, indeed, any bright colour about its plumage, it must be only their familiar habits and obvious relationship to the English bird that have given them the name. But these birds are hardly likely to take the home robin's place ; indeed, the North Island species is now almost extinct, sharing the sad lot that has fallen on so many of the inhabitants of that beautiful land ; and the Maories see in its fate the prognostication of their own, saying that even as the "Pitoitoi" has disappeared from the woods, so will their race die out before the white man.

Australia has robins too, very nearly related to the genuine article, and much more beautiful in plumage ; that is to say, as far as the male birds go, for the hen's plumage is always plain, unlike that of our robin's mate, who is practically indistinguishable from her husband. The most familiar of these Southern robins is gorgeous in

Ornithological and Other Oddities

a black coat and scarlet vest, while in another these hues are replaced by grey and pink, and a third sports a waistcoat of canary yellow. Besides these there is a pied species, and a plain brown one, so that with such an *embarras de richesses* in the matter of robins at the Antipodes, it is no wonder that we do not hear of any one holding the special place in the hearts of our colonists that the original bird does with us ; the specially attractive bird personality in Australia seeming to be the comical, if rather vulgar, laughing jackass, that great land kingfisher which is such a mighty hunter of snakes.

In India robins are again to the fore. Most conspicuous is the pretty magpie-robin, or dhyal as it is called by the natives, whose English name sufficiently expresses its appearance, although the hen is not so magpie-like as the cock, the black parts of his plumage being iron-grey in hers. The dhyal is in size and habits intermediate between the English robin and blackbird, but is guiltless of raids on the fruit garden, and, being a very pretty songster, is altogether a most desirable bird. He is sometimes imported at home as a cage-bird, and so may now and then be seen at a great bird show ; indeed, the Zoo, and one lucky amateur, have even bred dhyals in aviaries in England. But he is not often to be obtained, being



PIPING CROW (p. 115)

Though called *noogie* in Australia, this is obviously a very different bird.



NEW ZEALAND ROBIN (p. 105)

South Island species; the rare North Island bird is darker.

Cock Robin's Counterfeits

seldom kept in captivity in his own country, like the true robin in England, although I am not aware that any prejudice exists against his incarceration there. The other true robins in India are not so widely distributed or conspicuous, and so call for no special remark ; but the Himalayas hold a bird which bears the name of robin, and is better known to bird-keepers at home than any other of those I have mentioned, though not, properly speaking, a near relative of the real robin at all. This is the very sweet little bird known as the Pekin robin—though, albeit his range extends to China, it does not reach Pekin—or, more scientifically, as the red-billed or yellow-bellied liothrix. I do not know of any small bird more attractive than this pretty creature, with his coral-red bill, yellow throat, shading into orange on the breast, black moustaches, and steel-glossed forked tail. Nor are these his only points of beauty, for his quill feathers are most beautifully bordered with orange, producing an effect quite unique among birds, and his whole plumage is most exquisitely sleek and smooth, while his large black eye appropriately sets off the whole, and in its mild expression does not belie his disposition. For liothrix really belongs to the good-natured and sociable group of babblers, and, in spite of his very robin-like appearance, has nothing of the

Ornithological and Other Oddities

robin's churlishness of disposition, but is ready to be hail-fellow-well-met with his own species or any other. This any one may easily observe who cares to go to the comparatively small expense of buying one of these birds, which are now more frequently imported than any other "soft-billed" species, being often obtainable for less shillings than they formerly cost pounds. Placed in an aviary with other birds, the Pekin robin will take an interest in everybody and hurt nobody, will tickle the head of any bird willing to permit the kindly attention, and devour sop, seed, fruit, or insects with a catholicity of taste which does much to explain his abundance and wide range in the wild state. Insects, of course, stand first in his bill of fare, and he is very quick and adroit in securing them, using his foot, as tits do, to help in securing a prize too big to be successfully broken up by the bill alone. It is a curious fact that this simple trick seems never to be learnt by some birds; none of the thrushes or starlings know it, while tits and babblers have it at their toes' ends, so to speak. The liothrix is not a free breeder in captivity, although so easily tamed; but the species has, nevertheless, been bred on several occasions. In a wild state it is a shy, skulking bird, much like our hedge-sparrow in general habits, and I have seldom heard from the male in his native

Cock Robin's Counterfeits

haunts the pretty song which he will constantly repeat in confinement, especially if unmated. Taken altogether, this bird presents more attractive points than many far better known and more widely praised, and is an excellent example of beauty blushing unseen, for he is rather wasted on Himalayan brakes. I can only hope that when people have got over the horror of acclimatisation with which too successful experiments with sparrows and rabbits have filled them, this pretty bird will be invited to dwell in any country where his hardy constitution and omnivorous habits will allow him to live—not as a captive merely, but as a woodland bird. The Devonshire hills would suit him admirably, and he might fill in that most lovely of English counties the place of the missing nightingale, while in the United States and our Australasian colonies there must be many districts where he would thrive.

BIRDS THAT TALK AND MIMIC

As one of the judges at the *Daily Express* parrot competition,¹ I had an opportunity of noting, not by any means for the first time, the extraordinary public interest in talking birds, and also the capriciousness of the familiar grey parrots, which, although known to be the best talkers, require patience in those who want to hear them speak in company.

Other parrots of less repute are often less shy, and sometimes speak as well, though undoubtedly intellectual ability is far more general among the grey birds.

I remember, many years ago, seeing at a bird show at Oxford a specimen of the common green ring-necked parrakeet of India, which continually talked during the exhibition.

Its voice was high and thin; but its request, "Waiter, bring Polly pint of beer, quick! quick! quick!" was unmistakeable in its clearness. This

¹ The birds in this competition were supposed to say "Your food will cost you more" (in allusion of course to "Protection" and the little loaf). One of the birds, a brown-throated conure (*Conurus æruginosus*) would repeat sentences after its master, but not the catch-phrase, actually laughing instead! The winner was a grey parrot.

Birds that Talk and Mimic

bird was a hen, and sex often seems not to influence the talking capacity of a parrot.

A hen red-and-yellow macaw in the Calcutta Zoological Gardens, which had been received by exchange from the London Zoo, used to say, "Come on, Cocky!" with absolute perfection of intonation, while her mate never said a word.

In India also I heard of a specimen of the native green parrakeet which must have been an extraordinary talker. Its owner—a soldier—said that the bird (which, by the way, he did not want to sell) spoke English, Hindustani, and Japanese, and picked up fresh expressions so readily that he was "afraid to swear at the servants before it."

The Indian parrakeets were those first known to the ancients, and the bird which belonged to Corinna, the beloved of Ovid, has been immortalised by the poet. It was, he said, more brilliant green than emeralds, with saffron bill, and its last words were, "Corinna, farewell!"

Another Roman parrot was, like our fiscal friends, educated in politics, and is made to remark :—

" For other names your teachings may avail,
I taught myself to utter, ' Cæsar, hail ! ' "

It is a far cry indeed from ancient Rome to modern New Zealand, but from the latter country

Ornithological and Other Oddities

comes an anecdote of a political bird whose utterance was very much to the point. This was not a parrot, but a tui, or parson-bird.

The tui is a large honey sucker about as big as a missel-thrush, with lovely bronze-black plumage, set off by a pair of white neck-tufts, recalling a parson's bands. It is a clever mocker, and learns to speak.

This particular bird belonged to an old chief, Nepia Taratoa, whom, together with many other natives, Sir Walter Buller was once addressing on some matter of grave political import. The naturalist politician, who tells the story against himself, had only just finished his speech when, before his master could reply, the tui called out from his cage overhead, "Tito" (false!), with unmistakeable emphasis.

It was too much for the audience, and Nepia Taratoa himself, overcome with the rest, laughingly remarked that Sir Walter's arguments were sound enough, but that the bird was very clever, and, still unconvinced!

The parson-bird is a convincing proof of the fact that birds do not talk with their tongues, for, being a honey sucker, the tui has a long, extensible tongue, with a fringed tip, as unlike the human tongue as possible.

As a matter of fact, a bird's voice is formed in the syrinx, which is quite low down in the wind-

Birds that Talk and Mimic

pipe, and therefore cannot have anything at all to do with its tongue in any case.

Of other talking birds not of the parrot family the most celebrated is the Indian hill-mynah, a large, thick-set starling, glossy black, with orange bill. In India, its native home, it is often kept as a pet, and when it talks really well is a perfect wonder to listen to.

The best I ever heard—in fact, the best talking bird of any kind I have met—belonged to a friend in Calcutta, and spoke in an absolutely human way, with a deep, throaty voice. He required some coaxing before he would display his talents, and the method employed was to get a native servant—a very good fellow, but of somewhat bibulous tastes—to talk to him.

So this worthy would squat down, and repeat—for he spoke English well—the mynah's own phrases to the bird. But the mynah would not say, "Who are you?" "I'm off to London," or any other of his set phrases; instead, he would, after a while, come out with "Not a drop to save my soul!" which sentence, when once started, he would continue to repeat at intervals with painful distinctness and apparent satisfaction.

The owner of this bird once had another, which spoke equally well—but far less respectably. He had bought it as a talker, but in ignorance of the extent of its knowledge or the depth of its corrup-

Ornithological and Other Oddities

tion, and when a lady came in to buy a talking mynah, it was brought out for her inspection, and encouraged to make some observation. If I were to repeat what that wicked mynah said it would surprise the British matron.

The mynah found a home, for the next person who wanted one—who happened to be a legal practitioner—no sooner heard the bird's somewhat unduly racy vocabulary than he exclaimed, "That's the bird for me!" and carried it off in triumph.

The house-mynah of India, which is a neat brown bird with yellow legs, and habits much like our own starling, is not so often heard of as a talker, but I knew one very good one in Calcutta, which was particularly free and friendly in conversation.

As soon as one went up to the cage it would commence to bow in regular starling fashion, and to say, "Mynah, mynah, pretty mynah! Call the dog! Jack, Jack, Jack!" all very much in one breath, and in a decidedly high key.

Indeed, of all talking birds, this half-domestic creature is about the best for a pet; it is very easy to keep, cannot bite like a parrot, and gets so tame that it can be allowed to go about the house, and even outside, with unclipped wings.

Another good talker, which can be allowed liberty with less risk than the mynah, owing to



PLATE 107

H. S. Bennett

HILL-MYNAH

This is the species best known as a tall en



PLATE 108

H. P. Dando

HOUSE-MYNAH

This Mynah is a familiar bird even on the roads in India

Birds that Talk and Mimic

its greater size and strength, is the piping crow, the "magpie" of Australia, which is always on view at the crows' cages at the Zoo.

This handsome pied bird has a beautiful whistle as his natural note, and in captivity he learns to pipe tunes and to speak with great readiness, and is very ready to show off his accomplishments in either direction.

One I knew in Calcutta used to say, "Who are you?" to every one who entered his master's yard, and another at the Zoo some years ago used to be always whistling a tune. He did rather too much of this, as a matter of fact, for he only knew a line and a half, and used to keep on repeating this *ad nauseam*.

The late Mr. A. D. Bartlett told me he at first had the bird near his quarters, but had to send him down to the aviaries, for, as he said, "he used to start at daybreak and keep up that tune over and over again, and I used to lie in bed and sweat, waiting for him to begin!"

The last talker I allude to belonged to a species which, like the parson-bird, is little known away from its home. This is the bird called in books the greater racket-tailed drongo, and, in its native Indian home, the bhimraj.

This bird belongs to the shrike tribe, and is glossy-black, with two long feathers in its tail, wiry with tasselled tips.

Ornithological and Other Oddities

It is a most wonderful mocker, and can imitate any animal. I have heard one sing exactly like a canary, which performance, as the bhimraj is nearly as big as a magpie, sounded ridiculous enough.

Another yelped exactly like a puppy, and kept up the imitation years after it had had no opportunity of practising, as the puppy's life was short. This same individual could also whistle one verse of "Tit-willow" perfectly.

With all these accomplishments, the bhimraj very rarely talks; but I heard of a perfect talker from an eminent scientific friend in India. He had called on a planter when up-country, and found he was not in.

Sitting down in the verandah, he was hailed with the remark, "Have a peg, old man?" but as no one appeared who could have offered this refreshment, he looked about and convinced himself that the hospitable invitation came from a pet bhimraj. He afterwards found that this was not the limit of the bird's capabilities, and that one favourite remark was, "How about my bonus?"

“ OSPREY ” FARMING

THE sinful cruelty practised in obtaining the beautiful aigrettes known to milliners as “ osprey ” plumes has evoked any amount of reprobation in the press and elsewhere ; but they are still sold and worn, and the assertions made that the birds from which they are obtained are kept in “ farms ” have been proved to be incorrect. Yet there is no reason why “ osprey ” farming should not be made a lucrative and legitimate pursuit if people went the right way about it.

In the first place, it must be remembered that the filmy white plumes do not come off the bird properly known as the osprey. This is a large brown-and-white fishing hawk, persecuted, indeed, to the death by the collector of “ British specimens,” but not in the cause of fashion, since it has no remarkable plumage to excite cupidity.*

The plumes sold under this name are the trousseau of several species of white herons—a wedding garment worn by both bride and groom, and they were originally called by the French name “ esprit.” Mispronunciation, and the knowledge that there is a bird called osprey, have given us the present title. Of course, the

Ornithological and Other Oddities

objection to their use is the fact that the birds are killed in the breeding season, the young being left to starve; but by keeping the birds in captivity all this could be avoided, as they could be caught and shorn much more easily than ostriches or even sheep.

There are several species of egrets, as these white plume-bearing herons are called, but one seems more suitable than any of the others for artificial culture. This is the biggest of all, the large egret (*Herodias alba*), a bird found practically all over the world, for although some ornithologists divide it into two or three species, the differences are not of any practical importance. It is about as tall as our common heron, but even more long and slender in shape, and its breeding plumage is in the form of one thick bunch of very long plumes growing from its back.

This species, being able to live in both hot and temperate climates, would thrive either here or in our Colonies, and being of a size to protect itself against any ordinary vermin, has obvious advantages as a domestic bird. It is, moreover, very long-lived. When I was in Calcutta there was in the Zoological Gardens there a bird of this species, which had previously been for some years in the old menagerie of the Viceroy at Barrackpore. It had been transferred to the



11-10-1935

LARGE BUILT (p. 118)

Feeding in open water - solitary



11-10-1935

AMERICAN BITTERN (p. 101)

Feeding in open water - solitary

“Osprey” Farming

Calcutta Zoo in 1879, and lived more than twenty years after that.

“Hannibal Chollop,” as I used to call the bird, since his motto appeared to be “two feet in a circular direction is all that I require,” had been rather a bloodthirsty individual before I knew him, and had accounted for several other birds in his time; but he improved with age, and his last years were guiltless of blood. He bore a splendid bunch of plumes every year, and, considering his longevity, might have set up a lady in aigrettes for her whole life. Indeed, it was acquaintance with him that gave me the idea that an egret farm would be a paying concern even if the birds did not breed.

This large egret is found as near us as southern and south-eastern Europe, and could probably be had through the dealers who import Hungarian partridges in such large numbers. As the demand is so limited the birds would be expensive to buy, probably as much as £5 a head; but if they became a more regular article of trade they would no doubt come cheaper, for birds seldom kept are always dear.

Young birds should be procured to start with, as old ones would probably bear captivity with a very bad grace, like the common heron, which is apt to refuse food when captured adult. Four may be found in a nest, and they might be

Ornithological and Other Oddities

expected to bear marketable plumes in the year after capture.

The best way to keep them would be to clip the long quills of one wing, and turn them out in an enclosure surrounded by a six-foot fence of the coarsest netting until they got tame, when they could be allowed to wander about any available fields, care being taken at first that they did not stray. They would do no harm to any sort of crop, as they are purely animal feeders; in fact, they would be of use in destroying vermin, as, like our own heron, they do not confine themselves to fish. The vicinity of a stream would of course be desirable; but in the absence of such accommodation a large shallow tub, kept full of clean water, would be sufficient for them to bathe in.

They would probably need no shelter from the weather; but rough ladders should be placed against convenient trees for them to go up to roost, or in the absence of such arboreal conveniences an open shed with perches underneath would serve as a dormitory. In such a place, too, earth could be put underneath to absorb the droppings, which would be as valuable manure as guano.

With a free range they would, as I intimated above, pick up a good deal of their own food, but if they had to be fed entirely by artificial

“ Osprey ” Farming

means the expense would not be great. Years ago I found the comparatively bulky common heron was satisfied with one meal of two herrings per day, and the extremely genteel egret is not likely to have so large an appetite. Nor is it necessary to give such luxuries as herrings; any refuse—raw meat, horseflesh, lights, or fish—if fresh, will serve as food, and sprats, when cheap, would be a much appreciated item of diet.

People would not be likely to steal birds like this, with dagger-like bills nearly six inches long and the instinct of aiming at the eyes of an aggressor; indeed, when required for the yearly clipping they would need to be secured in large landing-nets and their heads kept “in chancery” during the operation.

It is these considerations that lead me to think that the birds could be kept at a profit even if they never bred, since they are so long-lived. But in all probability they *would* breed, and as, like herons in general, they bring up their young in a nest and feed them themselves, they would be no more difficult to rear than pigeons; less so, in fact, as rats would be more likely to be fed to the youngsters than to feed on them.

Once they were got to breed, some selection could be attempted in order to produce birds

Ornithological and Other Oddities

with the most abundant plumes, the most accommodating appetites, and the best tempers and constitutions ; in fact, the species could be thoroughly domesticated, and of course there would be a profit on selling birds for stock.

SOME LONDON BIRDS

WHATEVER we may have lost of bird-life in London, the fact remains that, owing to the immigration of several interesting species in recent years, the metropolis can now show a very creditable selection of wild birds. And these have this particular advantage from the point of view of the bird-lover, that, more than any other representatives of their respective species in England, they give us the opportunity of observing them as they naturally are. This is not the paradox it seems, for the whole matter is summed up in the one point, that the cockney bird is tame, regards man as a friend, and takes him into his confidence, and thus acts up to his true character, without having an eye to the constant possibility of the need for hurried flight, like his country relative. Take the London wood-pigeon, for instance. Not long ago I saw a statement by an excellent observer, that the wood-pigeon, as opposed to the quarrelsome domestic pigeon, was a singularly peaceable bird; and no doubt it seems so, so far as it can be observed in the country. Yet in London a very common

Ornithological and Other Oddities

sight in the parks in spring is two wood-pigeons squaring up to each other nobly in the pathway to settle some affair of honour, with the public as sympathising seconds. It is no doubt sad that the birds should thus wash their dirty linen in public, and lower themselves in our estimation; but their choice of arena and confidence in the lookers-on are altogether charming. Comparing the wood-pigeon with the domestic pigeon reminds one of how the two species have to a slight extent interchanged habits. Sometimes the wood-pigeon will build on a house, and now and then feed in the street, while I once saw a pair picking about in, of all places, the tiny goods-yard of Baker Street Station. On the other hand, the tame pigeons have taken to the trees in Hyde Park, a very rare habit in the domestic bird; indeed, I have never seen it elsewhere except in a few places where trees were exceedingly close to a dovecot. The smallest and daintiest of our pigeons, the turtle-dove, made its appearance in our parks in 1904, for the first time, so far as I am aware. A single bird haunted the back premises of the south-west end of the Zoological Gardens for some time, and I was told it had a mate; indeed, I myself once saw two or three pairs on the wing at one time there. The single bird was wild, but could

Some London Birds

be approached near enough to make quite sure that it was the true wild turtle-dove, and not the cream-coloured domestic one, of which a few specimens have long been living and breeding in St. James's Park, though the public do not often see them. It is a pity that a larger stock of this pretty creature is not kept up; but, at all events, it is gratifying to find that our native bird is giving the parks a trial.

Scarcely less conspicuous than the wood-pigeon as a park denizen is the moorhen. In spite of an eminent ornithologist's statement that this bird seems unable to overcome the inherent stealthiness of the rails—which, in the country, is more or less true—the moorhen has become very much domesticated with us in town, and parades the turf with the assurance of a pet bantam. I have even seen one take food from a boy's hand, and all the pretty domestic economy of the moorhen family may be made out by a careful watcher. One may see how the young birds, bred early in the season, care for the tiny puffs of black down which are their little brothers and sisters, even before they are quite fledged themselves, and the prudent way in which an old moorhen, securing a big bit of bread, will feed a half-grown chick with bits broken off it, and ultimately leave it to negotiate the delicacy for

Ornithological and Other Oddities

itself. It says a great deal for the discretion of the moorhen that it is able to maintain itself in the cat-infested London area, for, as any one may see in the summer, it is quite incapable of flight in the moulting season, since all the quills come out at once, as is the case with ducks and some other marsh-loving birds.

The dabchick attracts little attention in the parks as compared with the moorhen, but it exists there under less favourable conditions. Being chiefly an animal feeder, it does not benefit by the liberal dole of bread bestowed by the public; and, not being at all at home out of the water, it cannot seek its living ashore, and so has to migrate in winter to avoid the risk of being frozen out. In other respects, this merry, plucky little diver prospers well enough and adapts himself to circumstances. Years ago, Riley, the late bird-keeper at St. James's Park, showed me a nest of the dabchick, for which newspaper had been employed, instead of the natural material of water-weeds, wet paper being just nice and soft enough to suit a dabchick's ideas of what was correct in upholstery. And, although not a beggar, the dabchick has cultivated very friendly relations with man. The "didapper peering through the wave, which, being looked at, ducks as quickly in," seems not now to exist in the

Some London Birds

parks. His modern representative boldly returns one's gaze. Indeed, one autumn I saw a dab-chick—a bird of the year, as was evident from his still downy head—swim boldly under the bridge at St. James's Park, unmoved by the presence of spectators, who hailed it as "a dear little duck."

The crowning joy of the London bird-lover has, of course, been the accession of the black-headed gulls in winter, though whether the birds already in possession of the park waters were equally pleased with their advent is another matter. However, these beautiful, noisy birds are the greatest of popular favourites while they stay, even where there is competition, and on the river they enjoy almost undivided patronage; I say almost, for during the last two or three years the big herring-gulls have got wind of the good living in London, and come up to practise piracy on their smaller relatives. Herein is the Nemesis of the latter for robbing the anciently-established park ducks; but from the nature-lover's point of view the big gulls are the best acquisition of all, their wide sweep of wing and slow stately flight giving a touch of wildness to the scene which the little black-headed species cannot rival. There have been for some time a few herring-gulls, bred from the pinioned birds in the parks,

Ornithological and Other Oddities

which had full power of flight, and these may have carried the news. I saw one of these true London gulls some time ago capture an unfortunate sparrow, which, after well soaking, it proceeded to swallow whole, and then unsuccessfully attempted to catch another, craftily going about with lowered head. But the success of the first attempt shows that "Philip Sparrow" has a lot to learn about ornithology, for he certainly does not seem to be aware of the difference between a gull and a duck.

"Philip" himself is more interesting in town than in the country, if only by reason of his more marked tendency to sport a motley coat. A pied bird was living near me for some time, but at last disappeared. The last time I saw him he was paying vigorous court to a hen sparrow, his expanded wings and tail showing off their white quills very strikingly. Whether the lady approved of this abnormal display I do not know—his sudden disappearance would seem to imply that she did not, and that he had consequently committed suicide or emigrated! But there are always some pied birds about, and such are always interesting, if only because they can be individually observed.

The thrush tribe seem to do remarkably well in London; the song-thrush and blackbird can hardly be commoner anywhere, and are delightfully tame and full of song. The thrush sings



L. Funn.

HERRING-GULLS

C. 1910.

Some London Birds

even in a hard frost; and as to tameness, I have seen one in Battersea Park alight within two or three yards of a party of children, while on a crowded Bank Holiday at the Zoological Gardens last year a blackbird fearlessly sat and sang on a low tree not a dozen yards from the path. The small birds in these gardens are in the lap of luxury; on one occasion a blackbird might have been seen picking a meal from a bone in a cage wherein the South African hawk-eagle looked down on him in harmless majesty, and there are plenty of enclosures where intrusion is less risky and equally profitable. The missel-thrush certainly bred either in or near the Zoological Gardens in 1904, for I saw the fledged young flying about there, and a few specimens of this most gallant and showy of our song-birds have been about Regent's Park for three years at least. In 1904 a single redwing was to be seen near them, and early in 1906 I often saw a flock. No less a visitor than the green woodpecker appeared in 1904 in St. James's Park, and, though I was not fortunate enough to see this bird, I did see a kingfisher and a grey wagtail there. The kingfisher certainly ought to establish itself in the parks sooner or later; all the circumstances are favourable—clear shallow water, with plenty of overhanging trees, abundance of small fish, and islands in which it could safely breed.

SOME EXOTIC OWLS

"AN owl is an owl all the world over," said the late Charles Waterton ; and certainly the illustrations accompanying this chapter are convincing proof of the correctness of his statement. They nevertheless show at the same time that there is a great deal of diversity underlying the similarity, and it is very possibly this difference of feature—if one may be allowed the expression—which makes people visiting the Zoological Gardens linger longer before the owls than before the hawks and eagles. Take, for example, the two most popular of all, Pel's fish-owl (*Scotopelia peli*) and the milky eagle-owl (*Bubo lacteus*), which used to be chummed together in one of the large apartments of the owls' residence on the north side of the gardens. The milky one is the largest owl in the gardens, and the most dignified ; the sober mottled grey of her plumage, and the majestic calm of her countenance, give her a truly episcopal appearance, and make it difficult to believe that in her native home in South Africa she is addicted to robbing hen-roosts—one would as soon suspect the Pope of picking pockets ! But all these eagle-owls are veritable terrors of the night, and at



WHITE-THROATED
 CHICKADEE
 (Parus rufescens)

Some Exotic Owls

their doors alone of all the family's can be laid the charge of doing more harm than good. And it is doubtful whether this can be sustained in all cases, as they probably destroy much vermin as well as game. Our best Indian field-ornithologist, Mr. E. C. Stuart Baker, once told me that he had started a Nepal eagle-owl (*Bubo nepalensis*) off the carcase of a tree-civet, which the bird had killed, circumstantial evidence being at hand in the shape of deep talon-marks in the victim's neck. These tree-civets are vermin of the worst kind, and better climbers even than cats, so that in this case, at all events, the owl was doing something to pay for his keep.

The milky eagle-owl's companion is a bird of quite another stamp. Pel's fish-owl has about him something of comic disreputability. His countenance is not dignified. His plumage of cinnamon, barred with black, has an undeniably "loud" effect among the sober habiliments common in the owl tribe, and his naked feet somehow look rather *outré* in an owl, although it is easy to see that a fishing owl is better off without stockings. In manner he is vulgar and forward, and the contrast between him and his companion, when they were first introduced to each other, was delightful to notice. The Bishop—as I feel tempted to call the big African owl—had lived in the den for a long time, but she did

Ornithological and Other Oddities

not feel called upon to resent intrusion. Piscator, however, was not content with being left alone ; he proceeded to insult his reverend companion. With erected wings he stepped along the perch to where his companion sat with her usual air of serene contemplation, and let off in her face a few yells which for dreary unpleasantness might bear away the palm from any of Grimalkin's performances. These insolences were received by his companion with absolute calm, and not until the unmannerly fisher thrust his nose almost into her face did she, without any show of temper, peck him gently but firmly on it. Subsequent attempts on Piscator's part had not any better success, so he resigned himself to sitting at the opposite end of the perch. This frigid state of affairs lasted some time, but latterly the fish-owl was oftener seen nearer the other ; he had ceased to insult, and possibly wished to scrape acquaintance, but the milky one still remained impassive. She was not the owl to give away her heart lightly.

'Meanwhile Piscator extracted a certain amount of amusement out of the public by giving vent to an occasional howl, just when they had ceased looking at him, and making them wonder who was responsible for it. Possibly he wanted to get the Bishop credited with caterwauling ; but, if so, he must have been disappointed, as, even if he refrained from repeating the offence himself, he

Some Exotic Owls

was obviously the more suspicious character as far as appearances went.

Another humorous owl at the Zoo is the winking owl (*Ninox connivens*), which, as the photograph shows, was obviously doing his best, when confronted with the camera, to show that he does not deserve his name. He is an Australian bird, and is given to loquacity, though a gruff barking note like "buck-buck" is the extent of his conversation. He represents a group which differs from other owls in not having the peculiar ruff round the face which is so often found in these birds, but no one would mistake him for a hawk for all that. One of the most noticeable, and at the same time most inexplicable, differences between owls and hawks is that the former sit with only two toes in front of the perch, the outer front one being turned back as in a parrot, though not so definitely and permanently as in that bird; and what with this and the round face, with the forwardly directed eyes and full feathering, the predatory birds of day and night are so distinct that the most hawk-like owl and most owl-like hawk need never be mistaken.

At the opposite extreme of owliness to the winking owl, we have the barn-owl, a specimen of the Australian race of which (*Strix flammea delicatula*) is shown in an attitude of defence. The barn-owls have the ruff and the "facial disk"

Ornithological and Other Oddities

of stiff hairy feathers better developed than any others, and many people must have noticed the curious heart-shaped appearance of their faces when they are asleep. They have, perhaps, the most beautiful plumage of all owls; but in the common barn-owl, which is found almost all over the world, it is very variable, as is the size of the bird. In the English barn-owl, *Strix flammea* of our familiar bird books, the prevailing tone of the upper plumage is buff, and the under-parts are pure snowy white. On the Continent a buff-breasted form with a greyer back is the common one, and the Australian bird, which is bigger than ours, is white below and very grey above, with the beautiful markings of the plumage peculiarly distinct, as the photograph well shows. In the Zoo at present one can see the two forms side by side, together with a peculiarly small and dark variety from the Galapagos Islands (*Strix flammea punctatissima*). The little black-and-white markings on the upper plumage of these barn-owls are just like drawings of candle-flames, whence, no doubt, the name *flammea*.

It is satisfactory to know that the barn-owl is being introduced into New Zealand, one of the few countries where it is not naturally found. The native owls seem to be becoming very scarce, and this species, being the most useful of all, as it feeds almost exclusively on rats and



AUSTRALIAN BARN-OWL IN ATTITUDE OF DEFENSE (p. 134)

The Pinted Song is sung in this position when much alarmed



CHAJA OR CRESTED SCREAMER AND YOUNG (p. 140)

The wing-spreads are not visible when the wings are closed as here

Some Exotic Owls

mice, is certainly well suited to take their place, for New Zealand is overrun with rats.

Striking as are the variations in the plumage of the barn-owls, they are excelled by that which is shown in the rare Ural owl (*Syrnium uralense*), of which specimens are now in the Gardens. One of these is the normal colour, a pretty variegated grey; but the others are little niggers, being of a peculiar uniform sooty colour which gives them a most impish appearance. It would be very interesting to know if the different colours of owls go along with different dispositions. This is certainly the case with some animals, for it is well known that the black variety of the leopard is a much more savage beast than the ordinary spotted kind, and the same is said to be the case with the black jaguar.

The Scops owls are quite little creatures, but they bear feathery "horns" like the great eagle-owls. The use of the horns in the little Scops is undoubtedly to increase the resemblance to a dead and broken stump of a bough which his stiff attitude and beautifully freckled grey plumage give him, for they are kept erect so as to look like bits of the broken wood. But in this case it is not so easy to see how a chestnut variety, which often occurs, gets on, unless attitude counts for more than colour in this protective position.

The most familiar of all owls, in all countries

Ornithological and Other Oddities

where they are found, are the little hornless species of which the bird of Minerva (*Athene noctua*) is the type. This little bird, called the "Little Owl" by English naturalists—although there are species only half its size—was so common in ancient Athens that "to take owls to Athens" was the classical equivalent for "carrying coals to Newcastle." It is a useful little vermin-destroyer, and is fortunately quite common in some parts of England, where it has been introduced, for its natural occurrence in our islands is very doubtful. The little Indian owls (*Athene brama*) differ from the European bird chiefly in being barred on the breast, instead of longitudinally striped; but their habits seem to be much the same. They are very domestic creatures, living in suitable crevices about buildings, and coming out with noisy cackling when the crows will let them. In Calcutta, where the crow is monarch of all he surveys, these owlets have to stay indoors till dusk. I have seen a crow, on his way to bed, stop to hunt an early owlet into a tree, evidently as a matter of principle. The crows number the big eagle-owls among their few enemies—a great point in the said owls' favour, by the way—and evidently think it just as well to suppress all owls, possibly thinking the little ones may grow bigger. Up country, where crows are comparatively scarce, I have seen the little owlet regularly coming out

Some Exotic Owls

in broad daylight, in the afternoon in fact ; and I have seen him at ten o'clock in the morning, though I must admit that on that occasion he was being mobbed and hustled by the "seven sisters." These ladies, a species of babbling-thrush which always goes about in small parties, keep a very strict watch on suspicious characters, but I do not suppose the plucky little owlet cares very much for their persecution.

The hatred of crows and hawks is a more serious matter, and I am inclined to think that to the persecution of such birds the retiring habits of owls are very largely due, since they are rather too much for even the larger species. An owl can certainly see all right in the daytime, nor, though his works are evil in the sight of the bird community, does he hate the light, for the owls in the Zoological Gardens may often be seen in the morning sitting in the front of their cages and fairly revelling in the full glare of the sun.

Conspicuous in his indifference to daylight is the true bird of Athens, and I am sure any one who watches this funny little bird will agree with me that it should be imported into England to a still further extent. In our London parks it would find a congenial home and be of use in thinning the sparrows, and an owl which would come out by day and show itself

Ornithological and Other Oddities

to the public would do so much to remove the popular prejudice against its most useful family, that even the warmest advocate of "England for English birds" might stretch a point in favour of this exotic at all events.

A CALCUTTA BIRD COLONY

DURING the years in which I resided in Calcutta, one of the greatest attractions in the Zoological Gardens there was the colony of wild fish-eating birds of various kinds which inhabited the islands in an ornamental lake. One of these was a mere spot of land, just sufficient to support a clump of pandanus or "screw-pine," but the other was of fair size, and comparable to those in St. James's Park or Regent's Park; and, like them, supported a good growth of trees. This was at first inhabited only by the common pond-heron or paddy bird (*Ardeola grayi*), a pied heron about equalling a pigeon in size, and one of the commonest birds in India. This bird is found wherever there are trees and water, and I knew of a colony in a town garden in Calcutta which had to be broken up as a nuisance. The presence of these birds in the Zoo, which is in the suburbs of Calcutta, was therefore not surprising; but the subsequent colonisation by other species, as related by my friend Rai Ram Brahma Sanyál Bahadur, the Superintendent of the Gardens, was rather remarkable. He tells the story in the *Proceedings of the Asiatic Society*, and from this account it

Ornithological and Other Oddities

appears that paddy-birds were the only inhabitants of the island till the winter of 1892, when a few of a very different species, the night-heron (*Nycticorax griseus*) put in an appearance. This curious thick-set heron is not rare in India—indeed, it has a very wide distribution over the world, occurring even as a straggler in England—but it seems to be local. In all the years during which I watched the Calcutta market, although herons of other species were often brought in, I only once found the night-heron, and then the proprietor of the specimen asked me what it was, not knowing its name even in his own language. This makes the invasion of the Calcutta Zoo island the more remarkable; however, it continued, for in 1893 a large number appeared about November, and spent three or four days in hovering round the place before they determined to settle. Although few, if any, bred in the next spring, they returned in the winter of 1895 in greatly increased numbers, and crowded out the unfortunate paddy-birds until they themselves thought fit to leave next spring; but this time they did not all go, a great many remaining to breed. As I had come out to India in the winter of 1894, I also was able to observe the progress of events, which was now complicated by the arrival of some cormorants. These belonged to the small jet-black species so com-



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THE BIRD-COLONY AT THE CALCUTTA ZOO
Island supporting clump of Pandanus

E. J. Inn



Copyright

THE BIRD-COLONY AT THE CALCUTTA ZOO

One end of the larger island tenanted by the birds, showing tree killed by their droppings

E. J. Inn

A Calcutta Bird Colony

mon in the East (*Phalacrocorax javanicus*), a more gracefully-formed bird than most of its tribe, and only about as large as a jackdaw. These birds rapidly increased in numbers, and conquered a portion of the island for themselves. Henceforth cormorants and herons lived together, if not in amity, at least with mutual toleration, and both parties bred in close proximity, building their stick nests on the boughs of the trees. The cormorants might often be seen away from the island, perched in the garden trees and tearing twigs from them after the manner of our rooks, while the herons for their part would often alight on the water to pick up a floating stick.

Except when they had eggs or young to attend to, the cormorants and herons were not actually much together in the island, as the former used to be away all day, while, when they came in to roost, the herons, being nocturnal, were going out to prosecute their own business under cover of darkness. At night one could frequently hear their quacking croak as they passed overhead, and they must have travelled far and wide for food, as before there was much cormorant competition their number was estimated at between 1300 and 1500. But the most interesting visitors of all arrived with the cormorants in 1896, in the shape of darters, or as they are called in India, snake birds (*Plotus melanogaster*). Every habi-

Ornithological and Other Oddities

tué of our Zoo has probably seen the darter there at his meals, and wondered at his marvellous dexterity in harpooning his prey. It may therefore be imagined how interesting it proved to see these extraordinary birds flying about the tree-tops, and looking, with their long necks and tails and broad wings, like some eccentric survivals from a bygone age. When Mr. Sanyál wrote his account in 1897, the darters had gone away again, and he could merely express the hope that they would return. This they did, to the great delight of all who were interested in the bird colony, and bred regularly year after year; they never became very numerous, however, and always left after the breeding season.

Interesting as was this assemblage of birds, it was not altogether without its disadvantages. The night-herons had not been very long in possession before the trees on the large island on which they had settled became very much fouled, while the undergrowth was killed; and with the advent of the cormorants many of them spread to the pandanus island, to the great detriment thereof, and ultimately to the trees in the garden itself. At last the matter became so serious that the Committee of Management had to take it in hand, and, very regretfully, to give the birds, or, at any rate, some of them, notice to quit. Accordingly, tin cans, with sticks affixed, were hung

A Calcutta Bird Colony

up in the trees to scare them off by rattling in the wind ; but these failed of their effect, and at last it was determined that some, at any rate, of the birds would have to be shot. Accordingly, a well-known Calcutta sportsman kindly undertook the task, and, after several dozens of the herons had been killed, they at last evacuated the place to a great extent. Of the cormorants not one fell a victim, for at the first firing these wary birds took wing and went out of shot, and were careful not to expose themselves subsequently. Of course, these operations were carried on when the darters were away, as it was not desired to discourage the presence of these valuable and ornamental birds. Their immunity, of course, involved the presence of some of their former associates in the breeding season, and when I left Calcutta in the winter of 1902, there was abundant reason for again giving the herons and cormorants a hint not to abuse their privileges ; but it had been practically shown that their numbers could be kept down to a working average, and I have since heard that this interesting colony is still allowed to continue. The attachment of the birds to their nests was well shown when at one time the breeding herons and cormorants were raided by a pair of one of the Indian sea-eagles ; when one of these dreaded birds alighted none of the former would take wing, though there

Ornithological and Other Oddities

would be a perfect roar of terror caused by the united cries of so many anxious parents. It was a great pity, in view of the tendency of the birds to increase unduly, that one of the eagles was shot for these depredations, as their influence would no doubt have been very salutary had they been allowed to work their will on the young birds. In the winter the old herons were often much worried, when resting during the day, by a pair of marsh-harriers, and the scene was a very beautiful and interesting one, the black crests and grey plumage of the herons, as they flapped squawking from bough to bough, contrasting beautifully with the chocolate bodies and yellow caps of their graceful tormentors, and the whole set off by the background of clear blue Bengal sky.

As might be expected, the harriers never seemed to strike any of them, but their movements were evidently regarded with suspicion. As the breeding season came on, it was interesting to note the change of the herons' legs from waxy-yellow to bright salmon-colour, and later to observe the brown, white-spotted plumage of the young, so different from that of the parents. The cormorants also showed many points of interest. They liked taking a drink before going up to roost on their return home, and used to fly down to the water and take a gulp without alighting, a most extraordinary feat for a bird of the kind. It was evidently an anxious



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THE BIRD-COLONY AT THE CALCUTTA ZOO

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THE BIRD-COLONY AT THE CALCUTTA ZOO

Two views of the larger island : the herons are visible as white dots

A Calcutta Bird Colony

business, for the head would be lowered and the bill opened well before the surface was reached, and sometimes the bird would miscalculate his distance, and so stop his course that he had to settle for his drink and have the trouble of rising again. At one time, for some reason I could never discover, all the cormorants took to settling for this final potation, but they afterwards resumed their old custom of drinking while flying. I used to wonder why the darters, with their long necks and much more buoyant flight, did not adopt the same custom ; but I never saw them do so. I did, however, not unfrequently see them walking on the ground to collect sticks, though they often pulled twigs off the trees, and I observed that their gait was much more horizontal than that of cormorants, the tail being kept well up from the ground. When flying the darters also only extended the fore part of the neck, the hinder portion being doubled back ; and when in the water the name snake-bird was seen to be most appropriate, as only the long, snaky neck appears above the surface. One never gets tired of watching birds like these ; and though darters are perhaps hardly a possibility here, there is no reason why we should not have a colony of the common heron and cormorant in our London parks, which would be quite as interesting as the Calcutta one, and more imposing, from the greater size of the birds.

HOW BIRDS FIGHT

JUDGING from the sentiments one sometimes finds expressed by people who are inclined to "slop over" when writing of birds, one might imagine that they lead an idyllic existence of peace; but, as a matter of fact, they are as pugnacious, not to say vicious, as grosser animals, and in no class of land vertebrates do we find structures developed for the sole purpose of fighting more frequently than in the feathered one.

It is true that some of the most quarrelsome birds have no special armature, in particular the ruff and the robin, and the latter often manages to kill his adversary; though in the case of the former death is only likely to end a fight when the birds are in captivity, and closely confined at that, so that the weaker can be fairly worried to death, or starved by being driven from the food.

The robin, and passerine birds generally, from crows downwards, fight with bill and feet, the latter being used, with remarkable skill in many cases, to hold off the adversary, or to keep him in chancery while the bill is brought into play.

How Birds Fight

Birds of this group never, as far as I have observed, use their wings in fighting, and they never have special weapons; yet their fights are very fierce, and often fatal, the bill being employed with great effect on the adversary's head.

Many stout-billed finches, such as the weavers and the Java sparrow, have, in common with the parrots, the cruel trick of biting their adversary's feet, the feet being in birds peculiarly sensitive, although one would not think it from looking at these horny, wizened members. It is a curious fact that parrots, when fighting, constantly try to ward off the enemy with one foot, a very senseless manœuvre, since they thus only expose their toes to injury needlessly. In the only fatal fight between the large parrots I knew of personally, between a blue and a red macaw, in the Calcutta Zoological Gardens, red fairly cracked blue's skull with his great bill. It is curious, by the way, that parrots and other biting birds do not aim, like many beasts, at the throat—the upper part of the head seems almost invariably to be the point of a bird's attack. The birds of prey fight exclusively, so far as I have seen, with their talons; in Calcutta it was a common thing to see two kites whirling earthwards with their claws clenched, the bird first attacked having turned

Ornithological and Other Oddities

on his back in the air to grapple his enemy as he stooped upon him.

In the pigeon and duck families the wings are the chief weapons, but the bill is commonly brought into play to get a hold and in the preliminary fencing. Pigeons have no special weapons; but in several members of the duck family these are present, notably in the spur-winged goose, a bird which is really rather a duck than a goose, and, indeed, looks not unlike a Muscovy duck on stilts. The spur in this bird is situated on the bend of the wing, and can deal a very severe blow; an old ruffian of this species, formerly in the London Zoo, once laid up a gardener for a fortnight with a blow on the knee, the man having unknowingly entered his enclosure without a broom to keep him off.

In the plovers and their allies, wing-spurs are unusually common, although none of the British species possess them. The spur-winged plovers appear to use their spurs when on the wing, and to strike with one wing only; but in the case of the jaçanas, or lily-trotters, those curious long-toed birds which spend their lives on the matted vegetation of tropical waters, the mode of attack seems to be different. At any rate, this was the case with the beautiful pheasant-tailed jaçana, or water-pheasant (*Hydrophasianus chirurgus*),

How Birds Fight

several of which I kept and studied in Calcutta. These vicious little wretches—they are only about as big in body as a turtle-dove—had a way of seizing each other with the bill, and then pummelling the victim with both armed pinions at once, in a way which must have been very unpleasant.

The other species of Indian jaçana, the bronze-winged (*Metopidius indicus*), has a most peculiar and vindictive weapon. It is not spurred, but has the *radius*, or inner bone of that middle segment of the wing which corresponds to our forearm, broadened out into a knife-like blade, which ought to deliver a most telling blow, but one, as might be supposed, which would hurt the deliverer as much as the recipient, since the bone is covered with skin as usual; but birds do not seem to feel much when fighting, and the wing is in any case less sensitive than the foot, judging from the equanimity with which birds bear the operation of pinioning; I have seen a duck begin to feed as soon as released after it.

Double wing-spurs are found only in the screamers, those large South American waterfowl of which the best-known species, the chaja, or crested screamer, is generally on view at the Zoo, and has bred there, the first recorded instance of its reproduction in captivity. The

Ornithological and Other Oddities

happy parents did their best to bully and intimidate the other inhabitants of the great aviary, to say nothing of their keepers, but owing to their clumsiness they did little harm. When, however, the chaja does get a blow home it can make it tell, and a half-grown bird has been known to beat off a dog.

It must be mentioned that these wing-spurs have nothing to do with the claws sometimes present on the wings of birds; these last are situated at the ends of the fingers, and seem to be of no use, except in the young of the hoatzin (*Opisthocomus hoazin*), which climbs with its wings as well as its feet, being practically a quadruped in its nestling stage. The spurs of the wings are annually shed in some cases, as in the "water-pheasant," which has mere horny pimples in winter.

The better known leg-spurs, however, are always permanent; in structure they resemble the horns of cattle, consisting of a bony core clad in a sheath of horn; and, just as such horns are confined to the members of the bovine family, oxen, sheep, and antelopes, so are leg-spurs only found in the family of pheasants, and not in all of those, being absent in most of the partridges and quails, which belong to the same natural group. The finest spurs, in fact the most beautiful and effective weapons

How Birds Fight

borne by any bird, belong to the red jungle-cock (*Gallus gallus*) of Eastern Asia, the ancestor of our domestic poultry. This gallant little fellow, although he strikes most people as being a mere bantam, is the match of anything of his weight in feathers.

The kaleege pheasants (*Gennaeus*) are more than a match for the pheasants of our coverts, and these for any ordinary domestic fowl; yet a jungle-cock has been seen to defeat a cock kaleege after an obstinate fight—a conflict compelled by honour alone, as the white-ant hill, about the possession of which it took place, would have furnished a meal for both combatants.

The spurs in some of the pheasant family are doubled or even quadrupled, as shown in the cock blood pheasant (*Ithagenes cruentus*) of the Himalayan pine-forests, a wonderful bird with long soft plumage coloured soft grey, apple-green, and carmine. Such many-spurred birds often have a different number of spurs on the two legs, as is, indeed, the case with this species.

In allies of the spur-winged birds we often find an incipient spur in the form of a knob, as in the sheldrakes, some of the most pugnacious ducks; and rudimentary knob-like spurs on the leg are not uncommon in the pheasant

Ornithological and Other Oddities

family, as in the case of the French partridge and the vulturine guinea-fowl (*Acryllium vulturinum*), which has several.

The common domestic guinea-fowl appears to use the blunt horn on its head as a weapon; at any rate a lady once told me she had seen one defeat an ordinary rooster by running under him and butting, a mean mode of attack which was altogether too much for poor chanticleer. Indeed, he is not usually a match for this spurless bird.

Those birds with armed legs fight by springing and striking forward, and a similar method of attack is found in the great flightless birds, though these, being unable to fly, usually have to rely on one foot only. Thus the ostrich delivers tremendous kicks, so powerful that one has been known to pierce corrugated zinc; but if his opponent is another ostrich the blow is usually received on the horny breast-pad, and so does little harm.

The cassowaries possess a special weapon in the shape of the formidably developed claw of the inner toe; they are active leapers, and, though amusingly playful when young, become nearly always dangerously vicious when full grown. A wounded wild bird has been known to force his human adversary to take to a tree for safety on more than one occasion.

How Birds Fight

Enlarged inner claws are also found in the cranes and the Muscovy duck, and their use is likely to be involuntarily discovered by any one who incautiously handles the latter bird under the impression that ducks are harmless things. In these cases, however, the fighting-claw is curved or hooked, and its special adaptation for warfare is only evident by its unusual size. Many birds of prey have enlarged inner claws, but this is merely part of the adaptation of their feet for predatory purposes, whereas, in the cases I have noted above, the big claw comes under the head of special weapons for attack or defence, such as the spurs above described.

AN HONEST CUCKOO

WITH regard to form and habits, the large family of cuckoos may be divided into two sections—the tree cuckoos, of which our own bird is an example, with long wings and short legs, and the bush or ground cuckoos, with short wings and well-developed, powerful legs.

All of the tree cuckoos inhabiting the old world are parasitic, but those of the new world are not—at any rate normally; while the bush cuckoos of both worlds are all respectable members of bird-society as far as the education of their young is concerned, building their own nests and caring for their eggs and brood themselves.

One of this section of the cuckoo family (*Centropus sinensis*) is among the most familiar birds of India, where it is known as the crow-pheasant, a most appropriate name, as the bird is in form and habits a curious combination of these two very dissimilar birds, having a powerful bill and predatory tastes, contradicted by the short round wings, long tail, and running habits of the game bird.

The plumage of the old bird, however, is very unlike that of the average pheasant, and more

An Honest Cuckoo

approaches the crow's, being of a glossy blue-black relieved by bright chestnut wings, a *tout ensemble* which makes the bird very conspicuous in its slow heavy flight.

Both sexes wear the same plumage, set off by fiery-red eyes, but the young differ in a curious way. Some of them are simply dull editions of the parents, the colours being duller and the brown wings sullied with black, while others are regularly barred with brown and black above and white and black below, and on the tail.

Both types have grey eyes. The barred ones, of course, are much the most pheasant-like, but they also suggest a hawk to some extent, and the resemblance is noted by other birds. At any rate, when on one occasion I bought a fledgling of the barred variety in the Calcutta Market, and showed it to a number of guinea-fowls in a coop, they shrieked with terror at it, while, when I got it home and put it on the balustrade of the verandah it created excitement among our local crows, which, however, did not venture to seriously attack it, as it boldly faced them.

It is interesting to see that the hawk-like appearance which is commonly supposed to be of some use to the weak parasitic true cuckoos is also found in these strong semi-predatory birds, and also that any general resemblance to a hawk is good enough to produce an effect on other birds.

Ornithological and Other Oddities

This young bird, like all of the barred variety I have had anything to do with, was very tame. I did not keep it long, but gave it to my friend Mr. D. Ezra, in whose possession it developed the affectionate habits of a lap-dog. Although the species is not, so far as I am aware, a nocturnal bird in its wild state, this tame bird would always make itself at home with its master in the evening, coming up to him when let out of its cage in the room, and sitting down on the couch by his side.

One I had had before was so tame, that when full-fledged I allowed it complete liberty in the Indian Museum grounds, where it picked up its own food—consisting mostly, as far as I could see, of refuse boiled rice, and of young toads—and yet remained so familiar that it would come up to me to have its head scratched. If, however, I took it up and held it, it would struggle furiously, drawing blood with its sharp bill.

In the end I missed it one day, and ultimately found it in a cage in the Bird Bazaar, where, I was told, it had been brought by “a Christian boy”! It bowed its head to be scratched as usual, and I ransomed it for fourpence and gave it to the Calcutta Zoo. Here it lived for some time and attained its full plumage, though the eyes simply became yellow, not red.

It was always very tame and even affectionate

An Honest Cuckoo

with me, and if it had had a mate would certainly, I think, have bred ; but I was never sure of the sex.

Jerdon was of the opinion that these barred young birds were the females, and those more closely resembling the adult the males ; but I am inclined to doubt this. In the first place, when two or three nestlings, evidently representing broods, were brought into the market together, they would all be of one or the other type, never mixed ; and it seems curious that the broods should be always of one sex, though a more extended experience than mine might have proved that the two types occur together. Moreover, the unbarred young, when reared, were more different from the barred ones than a mere sex-difference would seem to warrant ; they were much less tame in disposition, inclined to hop in their gait as well as to walk, and had shorter legs and longer tails. Lastly, we had a skin of a nestling in the Indian Museum which had the full adult plumage, thus presenting a still further variation in the same direction.

I must thus leave to Anglo-Indian naturalists the task of working out the meaning of these curious variations of one of the commonest birds in India ; it can only be done, I think, by rearing several and keeping them till they have moulted into adult plumage.

Ornithological and Other Oddities

They are good birds to have about a place in the tropics, as they destroy snakes and other vermin. My pet bird mentioned above, which could hardly have seen a live snake in its life before, immediately attacked one I offered it when it was confined in the Zoo aviary, instinctively attacking the neck of the reptile in the first place.

I noticed, by the way, that when loose in the Museum grounds it keenly hunted a lizard, and took care to get its head "in chancery" in the same way, so that this would seem to be its usual method of attack—obviously one which does not give much chance of retaliation even to a poisonous victim.

The most curious thing about the snake episode, however, was that after mortally wounding the unfortunate reptile, the bird altered its demeanour for the time, and would not let me handle it as usual, as if the latent ferocity of its nature had been aroused. A very marked corvine trait in this bird is its habit of holding prey down with its foot, and, speaking of this member, it is worth while to note its curious structure.

The toes are placed two before and two behind as in ordinary cuckoos, but the inner or true hind toe is provided with a long, nearly straight claw like that on the hind toe of a lark.

An Honest Cuckoo

The eggs are white with a chalky surface, and as three are usually laid, the parents must have a great deal to do to satisfy the brood, for the young are as ravenous as our young cuckoo, continually calling for food with a curious choking, gulping note repeated three times. The note of the old birds is a sort of hoot.

This bird is often proscribed in India as an enemy to game, but even if it does destroy chicks it ought to be spared in view of its great utility. Every one in the East ought to have a warm corner in his heart for a snake-killing creature, and as rats are also part of the bird's prey—at any rate it has been known to kill them in captivity—it may be fairly held to pay for any damage it does, since snakes and rats are no better neighbours to young game birds than any big bird of predatory tastes. Moreover, the insectivorous habits of the species render its preservation of importance, for in the East, at all events, one must always strain a point in favour of an insect-eating bird, considering the appalling variety and prolificacy of insect life in those regions.

The most interesting point about the crow-pheasant, in my opinion, is the curious way in which it represents the magpie. This bird, though found in the Indian hills, is absent in the plains, and the tree-pie (*Dendrocitta rufa*),

Ornithological and Other Oddities

which is very common there, is, as its name implies, a purely arboreal bird.

Hence there is a vacancy for a bird which will run about and be pettily predatory on the ground and among the underwood, and the place has been filled by a cuckoo, of all birds.

FEATHERED STOWAWAYS

Two or three years ago a specimen of the American bittern (*Botaurus lentiginosus*), which had been captured on board a ship in the Atlantic, 500 miles from Philadelphia, was received at the Zoo.

This is not the first time that birds captured very far from land have found a home in Regent's Park. But the present instance is peculiarly interesting, in that it amply justifies a surmise of one of our most judicial ornithologists.

The American bittern, paradoxical as the fact may appear, was first known as an English bird. As long ago as 1804 there was killed in Dorsetshire a bittern which was recognised by the great ornithologist, Colonel Montagu, as of a different species from our European bird (*Botaurus stellaris*). It was smaller and more slender, more finely mottled over most of its plumage, but had the quills plain drab instead of the usual cinnamon with black bands. Of course it was duly named, but not so very long afterwards it was found that this kind of bittern was the ordinary species in America, where the common bittern does not occur.

Ornithological and Other Oddities

Ever since then American bitterns have been in the habit of casually looking in upon us from time to time, and in a most flattering way they have refused to visit any other part of Europe but the British dominions. Moreover, their visits are so timed as always to take place between October and February.

Now, as this period agrees with the time of the American bittern's migrations, and our islands are the first land the birds are likely to reach in an Atlantic passage, it has occurred to our great authority on British birds, Mr. Howard Saunders, to suggest the theory of assisted passages across the Atlantic for these immigrants. There is so much trade between the States and ourselves that a weary bird would have little difficulty in finding a ship, and once aboard it would merely have to possess its soul in patience till the time came to go ashore.

The number of birds adrift at sea, however, impresses every one who has gone on many voyages in waters more favourable than the Atlantic, in seasons when the migrations are in full swing. The voyage to India and back is one which is certain to produce some episode in the way of bird passengers, often of great interest.

During several experiences of this passage I have met with birds which one certainly

Feathered Stowaways

would not have expected to see over salt water, and have observed one or two most interesting stowaways. Of the out-of-the-way birds I may particularly mention the night-jar. Of course, every one knows this bird goes south in autumn, but, as it is a creature of the night, one naturally expects it to travel at that time, especially as so large a proportion of the birds of day are addicted to "moonlight flitting" when on trek.

Thus a night-jar at sea is a very surprising sight, and at no time does one get a better view of this beautifully-mottled moth-hunter than when he flies round a ship in broad daylight, almost brushing it with his wings. His visit, however, is usually literally a flying one, and I have never known a night-jar stay any time on board, or let itself be caught there, though showing at the time remarkably little fear of man.

But one or two cases of bird passengers with which a closer acquaintance has been possible have occurred to me at different times, accompanied by circumstances of unusual interest.

In my first voyage abroad—more than twelve years ago—I was surprised and pleased by the appearance on board of a grey shrike, very similar to our winter visitor at home, though not quite identical.

Ornithological and Other Oddities

This bird joined us in the Red Sea two days after we had left Suez, and so tamed by exhaustion was he that, having at the time no suitable cage, I let him roost all night on one of the brass fittings of my cabin port-hole. Next day he took a cockroach from my fingers, and did not draw the line at one only of this high-flavoured delicacy. So I had no difficulty about his food, and was able on the following day to exhibit him to our sympathetic skipper seated on my finger, and devouring his orthopterous repast as happily as if on his native bush.

He at this time seemed still weak on the wing, but by the time we had got to Aden he had quite recovered, and felt able to try his luck again, for the day after leaving that port he squeezed through the bars of the cage which the carpenter had constructed for him, and flew out of the saloon skylight, disdaining the cockroach I proffered to lure him back.

For a little while he stayed in the rigging to shake out his plumage and consider his route, and then headed for land, which I sincerely hope he reached, though it was about sixty miles off. He had, at all events, scored his passage down the Red Sea.

The second stowaway I have to record was the last I have met, and the most remarkable.

Feathered Stowaways

As the P. and O. steamer *Japan* left Colombo harbour on her homeward voyage in December, a crow, which, perched in the rigging, was hungrily watching the cook cutting up some meat, was carried out to sea, and apparently did not think it worth while to make any effort to return.

He was not a very prosperous-looking crow, for his face was bare of feathers on one side, and possibly he thought that a sea voyage might be of benefit to his constitution. Be that as it may, he stayed on board, and was regularly fed; at night he roosted aloft in the rigging.

This was well while the weather was calm, but a day or two before we got in to Suez it began to blow very hard one night, and in the morning the poor crow was found worn out by his efforts to hold on in the teeth of the wind. With characteristic prudence, he determined the next night to roost under the awning, but the ship's cats showed such a desire to make his closer acquaintance that his friends on board decided that he would be safer caught and caged.

He bore his imprisonment with good grace and appetite, like my old friend the shrike, but his adventures had a sad ending. The weather was terribly cold when we reached England in

Ornithological and Other Oddities

January, and the poor crow, although he lived to be delivered at the Zoological Gardens, died before he had the opportunity of recounting his adventures and experiences to his fellow crows in the Society's aviaries.

At any rate, he could claim to have made a record as a stowaway that has seldom been equalled, especially by a bird which eschews migration and foreign adventure to such an extent as does the town-loving Indian crow.

NIGHT-JARS AT HOME AND ABROAD

JUST as the owls take up the butchering business where the hawks leave it off, so, when the shades of night fall upon the world, do the night-jars enter upon the pursuit of the insects which the insect-eating birds of day then leave to work their wicked will.

Our familiar British species (*Caprimulgus europæus*), so beloved of Gilbert White, is an excellent example of the typical night-jars, and is found in many countries, from Norway to South Africa, and from Ireland to the Punjab, the northern countries being, of course, its home only in summer. Although I have watched him in his haunts at home, and listened to his loud mysterious purring, and the strange cracking sound, which, like the common pigeon, he produces by clapping his wings, I have nowhere had such good views of the night-jar as on voyages to and from the East, when these happened to fall in the passage seasons of the birds. The night-jar at sea is most remarkably tame, and seems very curious, for he will skim along the

Ornithological and Other Oddities

side of the ship so closely as almost to brush it with his wings, affording one an excellent opportunity of examining the exquisite markings of his pencilled and stippled plumage of grey, buff, black, and brown ; while, on one occasion, I even saw the bird fly under the awning and poise for an instant on an unconscious passenger's head ! I have seen another species also approach a ship at sea, and I do not understand why these birds of night should thus be on the wing in open day, unless in their journeys they abandon their darkling habits.

A late arrival with us—for he must wait till the larger insects, his special prey, begin to fly—the night-jar does not breed till summer is fully come, but then he needs so little domestic preparation. No nest at all is built, but the two beautiful eggs, tinted-white with marblings of brown or faded mauve, are laid on the ground, where the wonderful protective colouring of the brooding bird is their safeguard while the parent sits, and their own extraordinary resemblance to pebbles is supposed to avail them in her absence.

The night-jar's newly-hatched little ones, two pinches of mottled fluff, harmonise better with the same surroundings, and when, after three weeks, their plumage has well covered them, they begin to present the kind of "find the policeman" puzzle so commonly exhibited by photographs of

Night-Jars at Home and Abroad

protectively-coloured birds. In such cases the point to look for is the eye. I remember picking an almost invisible woodcock out of a very perfect photograph in this way; but the woodcock is a proverbial fool, and the wiser night-jar keeps its eyes nearly shut even at the early age when it still wears a downy coat.

Some of these birds at the later age evidently believed in the Virgilian adage, "*nimum ne crede colori*," for they actually allowed themselves to be shifted on to a bare piece of ground to give the camera a better chance of displaying their beauties. And young night-jars are not by any means helpless, for they can run even in the downy stage, although they are fed by the parents, very much after the fashion of pigeons, except that the young take the old one's beak in their mouths, as has been made out by that untiring observer of our wild creatures, Mr. Edmund Selous.

Night-jars much resembling our own are found almost everywhere, but the family, as might be inferred from the habits of its members, is mainly a tropical one, and comparatively few are found in temperate regions, these being, of course, migratory, like our bird. Like the cuckoos, another tropical family with colonists in the colder parts of the world, they are remarkable for the variety of the notes of the different

Ornithological and Other Oddities

species, as well as for the extraordinary nature of these calls.

Everybody has heard of the North American "whip-poor-will" (*Caprimulgus vociferus*) and "chuck-will's-widow" (*Caprimulgus carolinensis*), though why these birds have such truculent views about William and his relict has not been explained. In India the commonest night-jar (*Caprimulgus asiaticus*) is often called the ice-bird, for its note exactly recalls the sound of a stone sent skimming over ice, most incongruous in the stuffy tropic night. As the imaginary stone does not always bounce the same number of times, people sometimes wile away the time by betting on the repetitions.

Perhaps the most extraordinary foreign night-jar, however, is one of the largest of them all, the urutáu of Brazil (*Nyctibius jamaicensis*), a bird which looks nearly as big as a crow, with a perfectly preposterous mouth and shanks exhibiting the irreducible minimum of shortness. There is a story current in Brazil that the urutáu is a sort of living sundial, always turning its head to the sun as it wears away the tedious hours of daylight, sitting at the end of a stump. Dr. Emil Goeldi, of the Pará Museum, has, however, disposed of this story, not by scoffing at it, after the manner of the cheaper sort of scientist, but, by tethering a tame urutáu out in the sun,

Night-Jars at Home and Abroad

when he found that all it did was to turn its head aside more and more as the sunlight incommoded it, resuming its position as the day waned ; the figures in his paper in the *Ibis* show the bird with a comically disgusted expression on its face at the moment of maximum aversion to the "eye of Heaven."

In addition to the typical night-jars, there is in the south-eastern parts of the old world a family of allied birds, forming, to some extent, a link between the night-jars and the owls, the frog-mouths, well known in Australia as "moreporks," corrupted into "mopehawks" and "mopokes." The best-known species of these are much larger and stouter birds than night-jars, with shorter wings, and very strong, though short, bills. They are not so active on the wing as night-jars, and usually sit across a branch like ordinary birds, not along it as night-jars usually do ; they have the outer front toe turned back at right angles to the middle one, and do not possess the comb-like claw on the latter so usual in the typical night-jars. Moreover, the moreporks build a nest in trees with twigs, like pigeons ; their eggs are white, and their young are clothed in pure white down. They do well in captivity, though they will not usually pick up food, but expect it to be held to their bills. There have been several specimens of the common

Ornithological and Other Oddities

Australian species (*Podargus cuvieri*) at the Zoological Gardens, which, for variety of facial expression, are equal to any of the owls. In one of the illustrations the bird wears an average expression, if I may use the term ; but in the other the mobility of his countenance has full justice done to it, apparent peevish disgust in the one contrasting with genial satisfaction in the other. As a matter of fact, in the former he is trying to look like a stump, while in the latter he has let his features relax, perhaps in the anticipation of dinner.



FOREIGN BIRDS AT LARGE IN ENGLAND

WITH the approach of winter those feathered aliens which by escape or liberation have found themselves at large in our English woods and fields have their first serious problem to face, especially if they happen, as is so often the case, to hail from countries where snow and frost are unknown. The remarkable ease with which birds from warm climates will bear our climate without the assistance of artificial heat has long been a source of wonder and satisfaction to aviculturists; but circumstances are rather different when the exile finds itself with no roof over its head and no table constantly spread for it, though increased exercise probably compensates for these drawbacks. There can be no doubt, considering the vast numbers of foreign birds now sold at a low rate, and the excellent condition in which they arrive—bearing captivity so much better than our English birds—that many out of these by some accident regain their liberty, to say nothing of purposed enlargements, and what becomes of them is certainly a puzzle.

Ornithological and Other Oddities

To take a few concrete instances. The Pekin robin (*Liothrix luteus*) is imported in the early year by the hundred, and is a bird remarkably likely to win his way to freedom. If any bird could be, like Sir Boyle Roche's proverbial one, in two places at the same time, it is the liothrix ; he slips out of a cage or aviary door with consummate ease, while, though looking stout as a bullfinch, he can squeeze through the drinking hole of a canary cage, if this is rather larger than usual. Once out, he can take care of himself better than any English bird I have ever seen ; in hopping he is a very "Spring-heeled Jack," and his flight, if short, is remarkably sharp, while he takes good care not to expose himself in the open. These peculiarities, added to the fact that he is hardy and omnivorous, make it not at all surprising that a specimen turned up in Norfolk one November, quite healthy and perfect, though with the richness of its colours dulled. Since then, several escapes have come to my personal knowledge ; the breakage of an aviary in a storm liberated three of these birds in Surrey, and one got away into a London square. We may thus conclude that every year a good few of such a species as this make the experiment of adapting themselves to English conditions. Besides, in 1905 I turned out more than three dozen in the London parks ; yet none were seen after a few months.

Foreign Birds at Large in England

The most numerous foreign cage-bird of all, next to the canary and collared dove, is probably the budgerigar, or grass-parrakeet of Australia (*Melopsittacus undulatus*), so familiar as the "fortune-telling bird" of our street sibyls. Thousands of these are imported annually, and, as they are easier to breed in an aviary than canaries, so many are thus raised that the stock could be easily kept up by this means alone. Not long ago a gentleman determined to try to acclimatise these beautiful and lively little birds in his park, and turned out some scores of pairs. These bred in the open, but ultimately all, old and young, took their departure, never to return. Isolated instances of budgerigars being seen at large are, of course, common. A pair once lived for years in a London square, and a bird-dealer told me recently that he knew of one which haunted a particular locality for a whole summer.

A few years back I myself liberated in St. James's Park a dozen specimens of that loveliest of starlings, the rosy pastor (*Pastor roseus*); but, with the exception of one which fell a victim to a stone, and another, probably of this lot, observed about a fortnight later twelve miles from London, they all disappeared before long. Yet it is very unlikely that they died, for the species is a particularly hardy one, eating anything, from grass to flies, and often reaching our shores unaided,

Ornithological and Other Oddities

when it associates with starlings till some one shoots it.

The game-birds stand a better chance of survival than most imported aliens, being carefully looked after by sportsmen; but the attempts made many years ago to introduce the American quail or bob-white (*Ortyx virginianus*) ended in failure—a great pity, as this is an excellent little sporting bird.

In considering the causes which lead to the failure of imported birds to establish themselves, I think we may dismiss the competition of our own species. It is true that the resistance of the previous occupants is one of the most serious obstacles to birds attempting to colonise a new locality, as was long ago pointed out by Darwin; but none of the species already mentioned would be likely to succumb to this.

The Pekin robin, though no fighter, is so active and cunning that he has nothing to fear from our small birds. A pair in the aviary of an amateur of my acquaintance were so smart that they would snatch food from the bill of a missel-thrush kept with them. The budgerigar, like most parrots, is more than a match for any bird its own size, and the dandified little Mandarin and Carolina drakes would not fear the competition of the mallard in the least; while as to the rosy pastor, it is, as I have said, readily

Foreign Birds at Large in England

received into the society of the good-natured and sociable starlings. As to birds of prey, they are so rare in England that they need not be considered in this connection. Almost any bird likely to be imported has had to run the gauntlet of falcons and sparrow-hawks in its own country, since the distribution of these types of raptors is practically world-wide.

What effect our climate may have on the birds is very hard to tell, but it seems unlikely to be the cause of death through cold to species which can endure it in captivity ; while with regard to the food supply, if such delicate little birds as the Dartford warbler and bearded reedling can find a sufficiency without leaving us, it seems curious that tougher ones cannot do so. It is quite possible that some birds are drawn away and lost in the stream of migration, and this is probably what happened to my rosy pastors, and possibly the Pekin robins also.

That mighty hunter "Ass-with-a-gun" is undoubtedly a deadly enemy to introduced birds, if large and conspicuous, as escaped cranes and pelicans find, but it seems to me that in the case of such birds as I have mentioned, the migratory instinct comes into play ; almost the only birds one can depend on acclimatising here are the pheasant family, which are incapable of distant flight.

INDIAN GAME-BIRDS AND WILDFOWL

THERE is no part of the British Empire in which bird-life is so varied and abundant as in India, and this is especially the case with those groups which interest others than professed naturalists. In respect of her list of game, shore, and water birds our Indian Empire can indeed challenge the rivalry of the world. The two species of peafowl alone—to take the game-birds first—would put any country's list of these in the front rank. We are apt, because the peacock is so well known in domestication, to forget what a wonderful bird he is—to fail to realise that he represents Nature's final effort in the direction of animal decoration, one eyed plume from his train being a perfect design and colour-scheme in itself. And, as if the ordinary peacock were not enough, we are presented, eastward of India proper, with another variation of the type in the form of the Burmese peacock, with its neck of scaly green-bronze and long slender crest; the ultimate development of the peafowl idea, inasmuch as the hen, except that she bears no train,

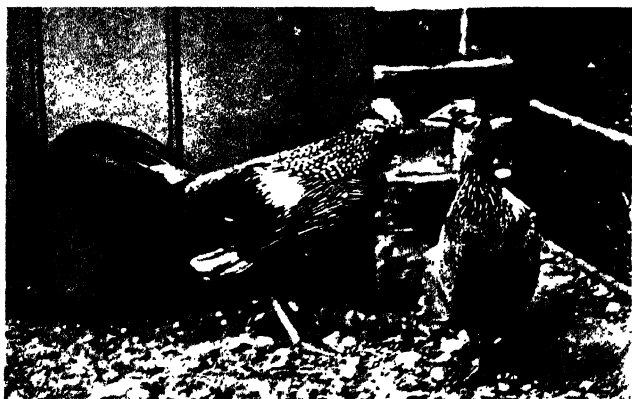


C. 100-101

RED JUNGLE-FOWL

H. P. Dando

The colour is just like that of "black-red" tame fowls



C. 100-102

GREY JUNGLE-FOWL

H. P. Dando

In the hen of this bird the breast-feathers are white with black edges

Indian Game-Birds and Wildfowl

is as beautiful as the cock, and so has progressed further along the path to perfection than the sombre mate of the more familiar bird. Along with the peafowls we find the jungle-fowls, the red species, the ancestor of that old companion of man, gallant chanticleer, plumaged gules and sable, and most savagely spurred, as befits the gallant knight he is; and the grey bird of the south of India, with his gold-bedropped hackle so beloved of salmon-fly makers, to say nothing of the orange-red and purple wild cock of Ceylon. Above the plains and foot-hills which form the territory of these range the Kaleege pheasants, near relatives of the exquisite silver pheasant of our aviaries, and, alas! just as useless for sport. Above them some birds have their being which recall in make and habits our pheasants at home; the triple-crested koklass, swift in flight and excellent in flavour, and the dull-plumaged but long-tailed cheer, a denizen of bushy-ledged precipices, down which he parachutes madly when disturbed by the sportsman.

Other noble game of the deciduous jungles of the hills are the strange tragopans, the commonest one horned and gorgeted azure, with the guinea-fowl's pearl-markings of plumage on a ground of richest crimson; and the grandest of all, the Monaul or Impeyan pheasant, with plumage of a humming-bird's radiance on a body

Ornithological and Other Oddities

as big as a fowl's, and a cry which is a strangely mellow rendering of the peewit's. Above them in the conifer zone lives the blood-pheasant, flavouring himself horribly on an aromatic diet of pine and juniper, and, where the forest disappears and leaves a stretch of grass running upwards to the eternal snows, the great ram-chukor or snow-cock, a partridge as big as a small goose, grazes on the turf or scratches for bulbs, with one wary eye on the soaring eagle, whose frequent attempts to capture him sitting give interest to a life at these stupendous heights. And he is not the only high-level dweller, for where the scanty moss and lichens half hide the rocks of the snow-line, a beautifully-pencilled bird, the ptarmigan-like snow-partridge, picks up a scanty living and waxes fat and savoury in an arctic environment.

There are no true grouse on these Himalayan heights, these grouse-like pheasants and partridges taking their place, just as trout-like carp take the place of real trout in the mountain streams; but on the plains the curious sand-grouse live and in some cases breed, hatching their eggs on the arid soil under a sun so fierce that the said eggs literally begin to cook if the bird is scared off them for any time. Of quails and partridges there is no need to speak; India has its full share of them, and the natives

Indian Game-Birds and Wildfowl

are still as fond of making pets and gladiators of quails as were the Greeks of old.

Bustards there are, too—the great Indian bustard, exceeding two yards in expanse and two stone in weight ; the desert-haunting houbara, a favourite quarry with falconers, and the delicious floricans, the smaller kind, or likh, adorned with long ear-plumes such as are only found elsewhere among certain birds of paradise. With such a large and varied list India ought to be the best country in the world for small-game shooting ; that it is not so is to be attributed to the fact that there is no properly organised and sufficient preservation, and that the country rairly swarms with ground vermin, from the leopard and jackal to the mongoose and cobra, so that it is a wonder how any game-bird survives at all.

Happily, however, the subject of game preservation is now being taken in hand more seriously, and one most destructive class of human poachers, the plume-hunters, who used to destroy monauls and tragopans by the thousand for the sake of their skins, have been effectually dealt with by Lord Curzon's admirable enactment prohibiting the export of such goods from the country. Legislative interference, however, is still much needed to protect the water-fowl, which, from the biggest ducks to the smallest sandpipers, are yearly captured by hundreds by various

Ornithological and Other Oddities

poaching methods, and sent alive to the markets to die slowly of hunger and thirst, for the native never troubles to attend to their wants so long as he can keep them alive without attention for a few days.

All through the winter this cruelty goes on, and has gone on for years, though my friend Mr. W. S. Burke, the editor of the leading Indian sporting paper, has constantly protested against it. The sight of it always mars the pleasure of a visit to this bazaar, otherwise a most interesting place, by reason of the number of different species of the stilted and web-footed tribes which throng in millions to India in winter, when, as Seeböhm picturesquely puts it, the Ice-angel has closed the gates of their paradise on the Siberian tundras. At this time India is perhaps the only country where birds, valued elsewhere for food and sport, may amount to a pest; the Indian ryot knows as well as the Roman farmer in Virgil's day "what harm is wrought by greedy goose and Strymon's cranes," and the garganey teal, comparatively scarce and scattered in the west, comes in dense multitudes, which break down acres of rice in a night.

Also come better-known quarry of the English wild-fowler, mallard and widgeon, pintail and pochard, to meet on the wheels the resident Indian water-fowl, the noisy, quarrelsome, whistling tree-

Indian Game-Birds and Wildfowl

ducks, the lovely little cotton-teal, smaller than a pigeon, and clad gorgeously in snow-white and bronze-green, and the strange pink-headed duck, with a body of glossy sepia, set off by a gaunt head of glowing pink, with ruby eyes. Then there is the interest of the invasion of India by various estrays—the wild race of the mute swan, the beautiful falcated teal of China, and of late years even the king of the ducks—the Mandarin duck of the same country—till recently only known in India as a captive bird, imported to stock the aviaries of wealthy natives.

As to the waders, their name is legion ; the common snipe is in myriads, and his relative, the pintailed species, equally common ; the jack is found, and more rarely the woodcock, with others of which home sportsmen never make the acquaintance. Most notable of these is the so-called painted snipe, really a gaudy sandpiper, with butterfly wings eyed with buff on a ground of pencilled grey. This is a resident, with most peculiar habits. The hen is the more beautiful bird, and in all probability, as is usual in such cases, leaves the sitting to the male ; both sexes also have the idea that they can terrify an enemy by the display of their spotted wings, accompanied by cat-like hissing. Another common wader is the strange and lovely pheasant-tailed jaçaná or water-pheasant, to my mind the most

Ornithological and Other Oddities

beautiful of all small water-fowl. From the pheasant tribe it borrows a long tapering tail and a patch of pure gold on its neck, the rest of its plumage being black and white; in carriage it has all the grace of the crane in a body no bigger than a turtle-dove's, and the enormously long green toes which support it on the tank-weeds are not noticeable in its natural surroundings. This is a resident bird, but in winter it entirely alters its appearance, losing its long tail and most of the black and gold in its plumage, and thus incidentally disproving a recent theory to the effect that only animals in a country with a hard winter change their colour according to the seasons. Godwits and curlews, sandpipers and stints, are in numbers beyond telling, with quantities of waders of the non-sporting types, herons, bitterns, and storks, from the gigantic bald-headed adjutant, formerly a street scavenger in Calcutta, to the "paddy-bird," a quaint dwarf heron found wherever there is a plash of water, and changing mysteriously from an inconspicuous brown object in repose to a snowy-white creature when it takes wing, which it only does when it catches your eye.

Beside all this host of land game-birds and fresh-water fowl, the sea-birds of India make a singularly poor show. There are no auks or divers, and very few petrels, while even the

Indian Game-Birds and Wildfowl

cormorants, which are numerous enough, prefer the fresh water, where they meet the darter or snake-bird, so well known to visitors to the Zoo. Tropic birds and brown and white gannets haunt the seas, but do not breed on Indian coasts, and even gulls, as a rule, are scarce. It is true that a good many kinds haunt the north-western coasts, but along the shores of the Bay of Bengal the brown-headed gull, a near ally of our familiar friend in London at the present time, is the only really abundant species.

Terns, however, are common enough, and many kinds are found, from the great Caspian tern to tiny dwarfs hardly bigger than swifts, the most fairy-like of all aquatic birds. Terns are also common all over the inland waters, and are likely to be the first Indian birds the visitor sees, as they follow the ship through the Sunderbund channels, plunging in the sacred but muddy stream of the Ganges, where it is stirred up by the screw. This group of sea-fowl, however, are found everywhere, and one of the main characteristics of the Eastern seascape is the singular absence of other sea-birds, a very great contrast to the teeming and varied bird-life of the land.

JAPANESE AVICULTURE

THE successes of Japanese horticulture, in the forms of wonderful effects in landscape gardening in a small space, trees of immemorial age dwarfed to a size suitable for window-boxes, and glorious chrysanthemums, are known to every one; but the equal success of this wonderful people in the culture of birds is not by any means so familiar to the world at large. The best-known results of their pains bestowed in this direction are two breeds of fowls, the Japanese bantams and the celebrated long-tailed fowls. The Japanese bantams have been known in England for a long time, and are not at all uncommon; as the photograph shows, their most striking peculiarities are extremely short legs and, in the cocks at all events, very large combs. They are usually black or white, or a mixture of the two colours, white with a black tail being very commonly seen. This coloration, however, does not represent a triumph of breeders in the localisation of colour, as has been stated, for black-tailed white fowls represent a very common and spontaneous variation, frequently seen wherever fowls are allowed

Japanese Aviculture

to breed promiscuously. Thus this particular marking is a very easy one to breed. The short legs of the Japanese bantam are found in two large European breeds, the Dumpies—now apparently very scarce—and the French Courtes Pattes. I have seen abnormally short-legged specimens occurring among the Malay fowls, which are the usual breed in Zanzibar, though the Malay usually has very long legs; so that these Dachshund-like breeds of fowls have probably been obtained by breeding from chance short-legged “sports.”

With regard to the large combs of the Japanese bantams, it is noteworthy that their possession does not inconvenience the birds in any way, as these are as lively, brisk, and plucky as bantams in general; whereas, in large breeds with similar proportionately large combs, such as the Minorca, this headgear often proves such an annoyance to the bird that he is unable to live happily till it is cut off. The Japanese make great pets of these bantams, and evidently admire them much, judging from the frequency with which they depict them in their art work; the specimens shown in the photograph are of the very best Japanese blood. They must be widely appreciated outside Japan, for I found them not uncommon in Calcutta, where they were imported from the further East direct.

Ornithological and Other Oddities

The much more remarkable long-tailed breed has also been long known outside Japan, but it is not commonly kept, owing no doubt to the attention required to keep the cocks in good feather. Fowls the length of whose tails runs into yards cannot be allowed to run loose unless the said tails are tied up, or they soon find themselves tethered to surrounding objects by these extravagant appendages. In general appearance this breed closely resembles the old English fighting game, although some specimens have small lumpy combs instead of "single" ones. As in game, also, the colour is very variable, and different names are employed by Japanese fanciers to designate the various colours, just as game-breeders talk of "piles," "duckwings," and so forth. Of the two cocks of the breed shown in the case of domestic birds in the entrance hall at the Natural History Museum at South Kensington, one is of the black-breasted red type, the wild jungle-fowl colour, and the other a "duckwing," in which shades of yellow or white replace the red. Mr. J. T. Cunningham has paid special attention to these birds, with a view to discovering the method by which the extreme elongation of the tail-coverts, centre tail-feathers, and long hackles of the lower part of the back is produced. His experiments, published in the *Proceedings of the Zoological Society* for 1903,

Japanese Aviculture

lead him to the conclusion that stroking and pulling the growing feathers, the method said to be employed in Japan, has a distinct effect in producing a longer period of growth than would normally be the case. But it is very doubtful whether this alone would produce the very lengthened plumage, and a certain innate tendency to extravagant growth of feather, increased by selection, may be safely inferred, as without artificial manipulation the length of feather attained is still comparatively very great.

No specimen kept in Europe has, however, ever grown such tail-feathers as have been produced in Japan, where, according to the Japanese, a length of 23 feet has been attained, though even 12 feet is a rarity. Even the saddle-hackles, growing from the back, have reached a length of 4 feet. It seems that in some cases the long tail-feathers are not moulted, but go on growing continuously for some years, at all events.

The proper way of managing the cocks is to keep them on a high perch in a dark narrow cage, taking them down every two or three days for a little exercise, with a man acting as train-bearer to keep the tail from injury ; and it says a great deal for the constitution of these fowls that they are vigorous and high-couraged, for such

Ornithological and Other Oddities

treatment would soon kill an ordinary rooster, fowls being, as a rule, very intolerant of actual caging in a very small space, although they may thrive in confined "runs," with proper attention.

The hens of the breed are very ordinary in appearance, except that the tail-feathers and tail-coverts are rather longer than usual, recalling those of a short-tailed bantam cock rather than a hen. The hen in the British Museum and two of Mr. Cunningham's birds are much like dark Dorking hens in colour, dark grey on the back, and fawn on the breast, but Mr. Cunningham also has one coloured much like a jungle-fowl hen, of what fanciers call a "partridge" colour in game-fowls. His male birds are "duckwings."

No doubt the best birds never leave Japan, so that it is not wonderful that in Europe the tails of the cocks do not grow to more than a yard or two, particularly as no special treatment is attempted by most people, the credit of trying this belonging exclusively to Mr. Cunningham.

In addition to their poultry, two other domestic birds of the Japanese are well known in Europe, and deserve attention. These are little cage-birds of the weaver-finch group; one is the Java sparrow (*Munia oryzivora*), the wild type of which, conspicuous in any aviary by its beautifully sleek grey plumage, black-and-white head, and exquisite rose-pink bill, is nowadays so freely

Japanese Aviculture

imported that specimens can often be procured in London at ninepence each. The Japanese have domesticated this bird, and bred from it a white variety, which is an exquisitely beautiful creature, the close snow-white plumage admirably setting off the intense rose of the bill and the paler pink of the feet and eyelids. These white birds, of course, breed freely in aviaries; they are rather larger than the grey wild ones, and more vicious in disposition, being given to toe-biting and tail-plucking. Another point in which they differ from the wild birds is the superior song of the cocks, though their melody is nothing very much to boast of. In Japan they are said to be kept in white cages, though it is difficult to believe that this has influenced the production of the colour, since white varieties are often easily raised by ordinary selection when once the variation has been obtained.

The other domestic Japanese finch is the Bengalee (*Uroloncha acuticauda*), a little creature about the size of our coletit. The natural colour of this bird, as it occurs wild in India and China, is a dark brown; but the domestic specimens are almost always more or less pied with white, and sometimes white all over, while some are cinnamon, and many pied cinnamon-and-white. Indeed, almost all those imported recently have been of the last-named colour. They are funny,

Ornithological and Other Oddities

harmless little things, with an insignificant little song, and always remind me somehow of domestic mice. I found both the Bengalee and the white Java sparrow common in the shops of Calcutta bird-dealers, and in both cases it was easier there to procure specimens of a perfectly pure white, not marred by "foul" feathers, than it is in England.

The gold and silver pheasants, so familiar in our aviaries, are said to be bred freely in Japan in captivity, and exported to China for sale, as are also the above-mentioned finches. The Japanese also have the two species of peacock, the green or Javanese (*Pavo muticus*), which is the only one appearing in their art, for which its scaly-looking plumage and quaint long crest peculiarly adapt it, and the black-winged form of the common peacock (*Pavo nigripennis*), which is often known as the Japan pea-fowl. In the male of this bird the wings are black, with a gloss of purple and green, not speckled, as in the common variety of the species; and the hen is white, with a grizzled back, so that it has all the appearance of a distinct species, though known to arise as a "sport" from the ordinary kind.

Particularly well known in Japanese art is the beautiful Manchurian crane (*Grus japonensis*), which appears to be kept as a captive in Japan,

Japanese Aviculture

and sometimes to have bred there. It is certainly the readiest of all cranes to breed in captivity, and has done so both in the London Zoological Gardens and with the great Dutch aviculturist Mynheer F. Blaauw of S' Graveland. So identified is this bird with Japanese designing that a friend whom I was showing round the Calcutta Zoological Gardens some years ago remarked when he saw one there, "Why, is that a real bird? I thought it only existed in Japanese art!"

The lovely little Pekin robin (*Liothrix luteus*), however, though often sold here as the "Japanese nightingale," is a Chinese, not a Japanese, bird, and seldom breeds in captivity. I have no doubt that the Japanese do keep it, for they are particularly skillful in managing "soft-billed" birds, and this one, combining beauty of song and plumage with unusual intelligence, can hardly have escaped the attention of a nation who show as much good taste and judgment in selecting birds and plants for cultivation as they do in so many other matters.

THE KING OF THE TITS

“AMONG the blind the one-eyed is king,” says the French proverb; and among our tits, whose very name, etymologists tell us, is a record of their smallness, the great tit (*Parus major*) passes for a big bird. Yet he is really less in size than a sparrow, and it is his striking dress, black hood, white shirt-collar, French-grey coat, and yellow waistcoat, which makes him such a striking member of the small-bird fraternity, especially as his consort wears the same clothes.

Fortunately, unlike so many of our more beautifully-coloured birds, he is very common, not only in the country, but in towns wherever trees may be found; even in London he may be seen at times, and I have noted him as late as midsummer, so that he probably breeds there. He is better suited for town life than almost any of our small birds, being most omnivorous in appetite, and active and plucky enough to be in comparatively little danger from the sparrow, though that bird's power of combination makes him irresistible to such species as his strong bill and bulldog courage are not sufficient to overcome in single combat.

The King of the Tits

The oxeye, as the great tit is as often called, except in books, is a bit of a ruffian himself, and, being possessed of claws like steel springs, and an uncommonly hard beak, which he uses with much effect as a pick, can and does commit atrocities in the way of avicide in captivity, as many a fancier can bear testimony. A century ago, Bechstein observed that he had known one of these birds attack and kill a quail—a bird twice its own size, and no mean fighter to boot—and more recently Dr. A. G. Butler has related how he kept nine great tits in two large cages, where they eliminated each other till only one was left in each. Want of room compelled him to try these together, but their ferocity was not appeased, and the very next morning a few fragments were all that were left of one. The concentrated cannibal which remained lived to moult twice; but, curiously enough, it lost its beauty of plumage, becoming very pale, and in particular assuming a dirty cream-coloured breast instead of a yellow one. Lest this should be rashly attributed to retributive justice, it may be mentioned, that Mr. J. G. Keulemans describes a very similar result in captive oxeeyes which have been allowed to indulge in milk. Of this many insectivorous birds are very fond in captivity, although it is such an unnatural food; and its effect on the great tit is to discharge the yellow

Ornithological and Other Oddities

colour from the plumage, turning the yellow-green of the back to a dull grey, and bleaching the breast to white. In this state the bird somewhat resembles the Indian grey tit (*Parus minor*), and thus the change is interesting, as showing on how little specific difference sometimes depends—in this case little more than the presence or absence of a fugitive yellow pigment.

Unfortunately for the character of the oxeye, it has to be admitted that the often-brought plea of "changed circumstances of captivity" will not acquit him; for he is known to murder other small birds, and even bats, when at liberty, and to fight with his own kind until blood is drawn freely.

I do not, of course, recommend any one to cage a familiar bird like this, except temporarily, for the purpose of some particular observation; for, although the bird bears captivity well, when once he has convinced himself that he cannot get out, it is far more pleasant for all parties to cultivate the oxeye's acquaintance in the open. This can readily be done in winter, when a half-picked bone or a head of sunflower hung out will speedily attract any individuals that may be in the vicinity. And in a favourable locality the birds will show themselves quite willing to continue the acquaintance thus begun, even in summer. This has been well demonstrated by Mr. Granville Sharp in his charming little book,

The King of the Tits

“Birds in a Garden.” He found that old birds of this species were glad of help when bringing up a brood, finding, when the grown young were still clamouring for food, that a piece of nut would stop their mouths for some time; since, though lazily expecting food to be put into their bills, they knew quite enough to hold a big piece down with their feet and chip at it with their bills in orthodox tit fashion. It is, indeed, very characteristic of the tits to swallow their food in small morsels, in a manner very unlike the greedy haste with which most insectivorous birds bolt it in large pieces. Herein, as well as in their habit of holding things under their feet, they much resemble their relatives, the crows; for every one must have noticed the mincing, finicking way in which birds of the crow tribe feed when they have time, though they will pouch big pieces for future discussion when pressed at the moment.

The great tit is, indeed, a jay in miniature, and as some foreign jays are not much bigger than blackbirds, and the splendid black and yellow Sultan-tit of the Himalayas (*Parus sultaneus*) is nearly as large as a thrush, even the size does not make much distinction between the two groups. Most tits, however, differ very markedly from most crows in their habit of building in holes; and the great tit in particular is most accommodating in his ideas of what constitutes a suit-

Ornithological and Other Oddities

able cavity. The bird which built year after year in a used letter-box at Rowfant is familiar to every habitué of the bird gallery at the South Kensington Museum ; and I was once shown at Swanley Horticultural College a great tit brooding peacefully in an old pump, and quite unmoved when the top was taken off to allow of the view. I have also known of a brood located in an old iron pipe, some feet down. One would think that tobogganing down on the brood and scrambling up again every time attention had to be paid them would be a game hardly worth the candle ; but to an acrobatic nature like the oxeye's such things seem trifling. One good point about this cheerful acceptance of unfurnished lodgings on the bird's part is that it is quite easy to induce him to colonise one's garden, a firmly fixed watertight box, with an inch-wide hole in the front, being all that is required. A brood reared about the premises will get delightfully tame. Mr. Sharp's young friends would freely enter his room in search of food, thus almost emulating a captive bird of this species I have been told of, which, allowed the liberty of the kitchen, used to help itself to whatever it fancied on the table, and retire to rest in a jug on the dresser. But it is as a subject for aviculture in the open that the oxeye especially shines, and I can strongly advise any one of my readers who does not as yet know him well to cultivate his acquaintance.

THE CONGREGATION OF BIRDS

NOTHING in the winter life of birds is more striking than their gregarious habits in that season; those which were sociable already, like the starlings, become more so, and those which in summer prefer to keep their nearest neighbours at a good deal more than arm's length, like the lapwings, have laid aside their differences for the time being, and feed and move in company. Of course there remain a few irreconcilables—the robin, the friend of man and the enemy of pretty nearly every one else; the blackbird, well named by the Romans *merula*, “the little solitary”; the hermit woodpecker, and so forth; but, on the whole, winter is for the birds a time for social relaxation. And this is the case not only in cold climates where winter means biting chills and long periods of semi-starvation, but also in those more favoured lands where earth and water do not become alike impenetrable to hungry bills, and where vegetable and insect life do not stagnate for well-nigh half the year. The migrating wild-fowl which cross the Himalayas to winter in India are just as gregarious on Eastern jheels

Ornithological and Other Oddities

as on our freezing estuaries ; and the whistling-teal or tree-ducks flock there like their northern visitors, though they are born and bred in the country, which to the latter is merely an agreeable winter resort.

The winter assemblages of our titmice and gold-crests find their parallels among the birds of warm climates. Bates, in his admirable "Naturalist on the Amazons," describes mixed flocks of various birds, usually insectivorous, which suddenly fill the forest with life and then pass on, hunting as they go. So also in India the various bush-hunting birds occasionally form mixed flocks, which traverse the jungle in company, the short-winged species hunting among the vegetation and on the ground, while those which take their food on the wing wait to snap up the insects which escape the groundlings. A more remarkable association has been observed in Africa, where a party of storks was once observed hunting grasshoppers, and each bearing as a rider a "large copper-coloured flycatcher," which bird darted from his stork's back to pursue any insect his steed had missed. The flycatcher in question was probably one of the beautiful red African bee-eaters, for in India the little green bee-eater is commonly mis-called in this way, and no doubt the same would be the case with his large red African relative.



COCKSHILL OF KOBAYASHI

It is a very common bird that grows in the country.

The Congregation of Birds,

In the case of assemblages of winter birds in temperate climates, the flycatching species cannot take a hand in the game, inasmuch as there are no flies to catch, and the birds themselves have all gone south; but the motive for feathered assemblages, of either the same or different species, is no doubt identical in all climates. As Bates pointed out with regard to the Amazonian birds, they are much safer in numbers, since a hundred heads are better than one where a look-out has to be kept. And enemies being so much more numerous in the tropics, it is not surprising to find that birds are far more sociable there than in our own latitudes. The Eastern babblers represent the thrushes of our woods in general habits, but they are markedly more sociable, being almost always in large or small flocks, which are reluctant to break up even in the breeding season. A party of white-crested jay-thrushes was once observed to be having a dance in full view of a sitting bird, who was doubtless cheered by the entertainment; and every one who has kept foreign finches must have noticed how, from the Java sparrow to the avadavat, they are far more attached to each other than our own finches; even two odd males, or a pair of different species, will strike up a friendship and cuddle and preen one another. The

Ornithological and Other Oddities

weavers form apparent exceptions, but even these, although so pugnacious, take care to form their hanging homes within easy quarrelling distance, and the flocks continue united all the year.

They are, it must be admitted, rather exceptional in this, for breeding colonies of land birds are rare everywhere; but about the winter sociability of many Eastern species no doubt is admissible. Another advantage birds are supposed to gain from winter sociability is increased ability to find food. The lucky tomtit who discovers a *cache* of spiders' eggs sounds the dinner bell, and the whole flock comes to join him at the feast. It is, however, questionable whether the bird itself regards this as an advantage, and the real benefit he derives is doubtless the comparative immunity from surprise when at table, rather than any profit in the "share and share alike" principle. For tits are selfish little birds, and are not averse even to cannibalism in captivity; so that it is reasonable to suppose their actions in a state of nature are not unduly altruistic. Similarly the Roman poet remarked—

"If the crow could hold his tongue while he ate,
He'd have much more dinner and less debate,"

the action of the crow—at any rate, the Indian species—of cawing and waving his wings over

The Congregation of Birds.

some dainty being an obvious invitation which is likely to be abused by the unscrupulous guests. But there are kites to be reckoned with, as the crow knows, and it is better, no doubt, from his point of view, to lose part of one's dinner to a friend than the whole to an enemy.

The value which birds set on a good watch is well illustrated by their fondness for the company of species which can be relied on to give them the alarm. Colonel Hawker recommends the encouragement of coots to any one who desires wildfowl on his piece of water, because duck always affect the company of these birds, for a very obvious reason. Sir Mallard, after a "night out," naturally returns in the morning with a conviction that his head is best under his wing, and is only too glad to be able to rely on the watchfulness of the coot, who has been respectably asleep all night, and is going about his daily business with all his senses on the alert. I can quite confirm the Colonel's opinion as to the popularity of coots from my own experience. I kept at different times several of these birds on the museum tank in Calcutta, and always found that they agreed excellently with the ducks, and were looked upon with a decidedly friendly eye even by the cheeky little dabchicks. The

Ornithological and Other Oddities

coot is, indeed, an excellent character, being courageous enough when it comes to resisting aggression, but not addicted to aggressive manœuvres for his own part.

This brings us to the root of the whole matter of congregations of birds. A bird must possess some instinct for society to be sociable at all, and this is probably always present in most species in a greater or less degree, being temporarily overpowered in the breeding season by sexual jealousy and territorial pride. Thus we find that the inveterately unsociable species, like the robin and blackbird, are generally non-migratory and particularly localised in their individual haunts. They are successful in the battle of life, and can afford to be churlish even over their winter quarters. But with less-favoured species, when the nesting is over and they must roam far afield for food, there is nothing but the said food to quarrel over, and the small bickerings over this are soon forgotten. I have seen the common Indian babblers in captivity fighting apparently to the death for a live cockroach and forgetting their animosity a moment after, and no doubt other birds are equally ready to forgive and forget. Moreover, birds do not breed till they are in high condition owing to plenty of food, when, of course, they are apt to be a little "above themselves," and tyrannical and exclusive in

The Congregation of Birds .

consequence. Thus it is that in aviculture one may find several birds live peaceably in rather close quarters in a cage, and discover, when these are allowed a wider range, which, of course, means better condition, that they become murderously quarrelsome. The hunger season is nature's cage to tame the proud stomachs of her feathered children, and they are humble in their want, for even in the tropics, if there is practically no starvation, there are months when the living is by no means high. This is what makes association possible, with all its advantages of defence ; but the disposition of the individual species or natural group must be taken into account, for some will always be free-lances in spite of climate or consequence ; the dhyal of India is just as bent on keeping the garden to himself as his near relative the robin in England. The dhyal also, in Burmah at any rate, shows a similar strong tendency to draw near to man. After all, the strain of constant watchfulness is probably too much at times for even the most independent bird, and he is glad to feel the protection of the unfeathered biped presence which he sees inspire all other animals with fear.

THE DOMESTIC LIFE OF THE DABCHICK

EVEN in Shakespeare's time the "didapper, peering through the wave," was not considered a bird whose acquaintance was easy of cultivation, and in spite of the tameness of these birds on the London park waters, one cannot always observe them even there. Consequently I feel that I have been unusually fortunate, during my life in India, in being for more than one season the spectator of the whole domestic life of a pair of these birds under quite remarkably favourable circumstances. I should premise that to all intents and purposes the Indian dabchick is the same as our bird in England, for although a distinguishable species, the points of difference it exhibits are not great, being merely smaller size, and a white patch on each wing formed by the secondary quills, which are of this colour ; this marking not being visible in repose.

I arrived at such an excellent understanding with the dabchick couple in this way. In the grounds in which the Indian Museum stands there is a large tank of unusually clear water,

The Domestic Life of the Dabchick

measuring about 60 yards by 30 yards, and very deep in most parts. Hereon I frequently placed ducks and other water-fowl procured from the market, which was not far distant. I tried dabchicks among others, but for a long time none of them stayed, but apparently flew off under cover of darkness.

At last, however, a pair made their home upon the pond, nesting in the autumn of 1900, and continuing to breed during the following two years, at all events; indeed, I hope they are there still. These birds were so exceedingly tame, and nested in such open situations and so near the bank, that it was quite possible to observe all their habits without the slightest difficulty. And the outcome of these observations of mine was to give me a very high opinion of the dabchick's character both for sense and spirit—in fact, I have never met with a bird so constantly interesting; and although the old birds are more quaint than pretty, there are few members of the bird world more charming than the tiny young. The little things when floating look only about as big as walnuts, and have not the chubby appearance of young ducks, but show already an approximation to the outlines of their parents, their proportions being emphasised by their short plushy down, streaked black - and - buff

Ornithological and Other Oddities

above and silver-white below, and set off by the little rose-pink bill and a red patch on the crown. This colouring is not in any way protective, unlike that of young game-birds, but the young grebes are so well looked after by their parents that such devices seem hardly necessary in their case. One is tempted to suppose that, just as male birds are believed to have developed beauty in response to the æsthetic tastes of their mates, so some chicks may have been rendered beautiful to enhance their parents' affection for them. Theorising apart, however, these dabchicks were most remarkably good parents.

Their offspring, of which four was the largest and two the smallest number which I observed, are at first disinclined to take to the water, although they can swim at once. They are also not active on land, or, rather, on the squashy pad of a nest, which is all the land they know, for except on one occasion, to be mentioned hereafter, I never saw a young bird come ashore. For the first week they cannot stand, but crawl on all fours, using the wings as forelegs, and looking like a great beetle. In this way they would leave the nest on sight of me, although the old birds cared little or nothing for my presence. Then, the parent being at hand, the little creature would swim

The Domestic Life of the Dabchick

to it, and burrow in its long silky flank-plumage under the wing, where it would rest contentedly on the back of the old one. I found that for about the first week they spent most of their time in this position, the pretty little heads appearing just at the parent's shoulders as she swam about with her burden. I say "she," for the hen appeared to do most of the carrying; but it is difficult to make out the sexes of dabchicks, the plumage being the same in both, and the size differing so little that it is hard to be certain whether one is looking at the male or the female if they are not together. In the case of these little friends of mine, I made out the bigger bird to be the hen, and, as I have said, it certainly seemed to be the nurse, while the other did the hunting. The game provided, for about the first fortnight at least, was fresh-water shrimps and dragon-flies, fish being apparently deemed too indigestible for nursery diet. The good sense of the parents was often shown in these feeding operations.

Once I saw the catering parent come up to the nurse and give a large red dragon-fly to one of the two babies which were being carried pick-a-back. The little thing tried to swallow this large mouthful, but could not manage it, whereupon the old bird turned her head round and took it away. What she did with it I do not recall;

Ornithological and Other Oddities

but on another occasion, with another brood, I saw a fish offered to all of them in succession. None of them could negotiate it, so paterfamilias wisely ate it himself. He was quite capable of looking after the children, for I have seen the hen leave them with him for a time, when the way in which they chattered before the transfer was made sounded as if they were able to discuss the matter. A proof of the male's intelligent care in the matter of food also occurred on another occasion, when one young bird was lying on the nest, the other two being brooded there by the hen. He swam round the nest to get to the outside bird, and gave it a shrimp, which it found awkward to manage. Thereupon he took the crustacean and worried it well, then giving it back to the little one, which was now able to dispose of it.

This use of the nest as a resting-place was very noticeable. As far as I could see, it was "made up" and added to every day while the brood was using it; and one day I saw one of the downy chicks, the eldest of the brood—though little more than a fortnight old—actually putting some material on the nest on its own account, before the old bird began to do it. The nest, which eventually sinks, was becoming very sodden, so the little bird evidently thought it ought to lend a hand in the repairs. The action strikingly

The Domestic Life of the Dabchick

reminded one of a little child trying to help its mother with household work.

On the nest the young not only rest at times in the day, but are brooded at night ; I was once able to watch them going to bed. One young one, at all events, got on to the nest first and waited, and when the old bird came on too, it crept under its wing, being brooded on the back as when on the water ; so that the dampness of the nest is no drawback to the tender little ones. By the time it subsides they are able to paddle their own canoes by day, and sleep on the water as the old birds do. This same independent paddling is not very much to the youthful dabchick's taste ; when it is first forced upon him he takes advantage of every opportunity to try to board the old bird whenever it heaves to for pluming itself. But the old dabchicks have a fine notion of discipline, and a chick which bothers too much is admonished by a sharp peck. This is especially the case where food is concerned. Dabchicks do not appear to give it indiscriminately to whichever infant squalls loudest, as most birds do, but will drive off an older chick to give it to a younger and less independent one.

On one occasion one of the present pair overdid this policy, with very sad results. There were two in the brood, and, as seems to be the custom

Ornithological and Other Oddities

of these birds, the parents had divided the young between them at first, and then one had left the pond altogether for a time. The chicks were both hunting on the surface for themselves, but while the smaller one was fed by the old bird, the larger's appeal for food was refused. The poor little thing did its best, but it did not seem to understand diving for food, and ultimately persisted in coming ashore and lying down in despair. I took it indoors and fed it, but it died next day, and the absolute absence of fat on the little body pointed too clearly to starvation as the cause of death ; it was feathered nearly all over, but the quills were still growing in the wings.

As soon as ever the wing-quills grew, the young used to disappear, except the Benjamin of the brood, which was allowed to remain for months, in one case even until it attained full breeding plumage, and its parents had hatched another family. The final departure seemed to be always made by night, as I never saw more than very short flights taken by day, even when the young bird was being hunted by an indignant parent.

One very remarkable weakness in the dabchick appears to be its inability to deal with floods. It certainly cannot foresee them, and even continued heavy rain does not induce it to raise its nest as

The Domestic Life of the Dabchick

some birds will do, although, as I have shown above, it quite understands raising the nest when used as a nursery. I saw this pair lose two nests of eggs in this way; a dabchick's nest is fairly soppy at the best of times, but when it gets absolutely water-logged, the case seems to be hopeless. Moreover, the first and largest brood of young they had was hatched just before a flood, and these all disappeared; whether they were devoured by fish, or whether sufficient food could not be found in the thick muddy water, I could not decide. But, after all, mistakes like these make birds all the more interesting; if they acted by infallible instincts, as used to be supposed, they would not be much better than amusing automata.

As to the details of the dabchicks' hatching arrangements, I have not much to say about them. I found they always left the first egg uncovered, though when more had been added they were very particular about keeping them well hidden. The covering up was done with the bill, not the feet; and I often saw the nest deserted by both birds for most of the day, the eggs well concealed under their blanket of wet weed, being left to the power of the sun. Their procedure in this matter was not uniform with every nest, nor did they always select the same site, the nest being sometimes in a small clump of bulrushes, and sometimes

Ornithological and Other Oddities

on the low-growing kalmi, or water-convolvulus. It was always, however, as I have said, so near the shore, that observation was absolutely easy ; and I am convinced that the birds knew me personally, for the sitting one would not usually mind my approach alone so much as when any one else was with me ; indeed, I think the birds reciprocated by their confidence the friendship I felt for them. And nothing but the word friendship expresses the feeling one has after a very little acquaintance with a bird of the dabchick's interesting habits and sturdy character.

As I have never heard of any one else making a pet of a dabchick, a few notes on one of these amusing little birds which I kept in that capacity myself may be of some interest to bird-lovers. It was in December, 1895, that I made this individual's acquaintance, he having been offered to me by a native dealer in the Calcutta Provision Bazaar as a "teal"! He was then quite young, having only down on his head and no quills in his wings, though his body-plumage was grown. I put him in a cage, and he became remarkably tame, for, before he had been in my possession a week, he wanted to follow me about, and was most restless and fidgety when he could not get to me. It was most curious to see him waddle across the floor and lie down like a little dog by my feet. Of course I often let him out for a

The Domestic Life of the Dabchick

swim, either in an earthen vessel or a masonry tank, and when enjoying himself in the water he showed that he discriminated at any rate between natives and white men, for he would dive at once when a black man approached, while I could lift him out of the water on my hand as if he were a child's toy duck. I never tested him to see whether he knew me individually, but I think this was probable.

When a photograph of the bird, unfortunately too dim for reproduction here, was taken, I had to keep my hand near it, as it refused to stand still otherwise; and, even if this were due to its natural fear of the kites which were wheeling overhead, it says something for the intelligence of the little creature that it looked to me for protection. The mention of its standing reminds me of the fallacy of the statement sometimes to be met with in bird-books, that grebes are unable to stand up like other birds. I have constantly found them able thus to stand, and also to walk about. •

I am glad to say that I have not to record the "untimely end" so often deplored in the case of pets, especially small ones; for soon after the bird's wings were fledged, I turned it out on the above-mentioned pond in the Indian Museum grounds, where it stayed in complete liberty, though losing its remarkable tameness in a day

Ornithological and Other Oddities

or two. Among the other water-fowl I had on this pond, it selected a coot as its friend, though this bird did not appear to reciprocate the feeling. As the dabchick had introduced itself by swimming up and pecking the coot behind, this is, perhaps, hardly to be wondered at ; but this piece of impudence was not repeated, though the ducks were often attacked below water, especially any new ones I put on. After a time, however, even they were unmolested, as the dabchick grew older and less given to juvenile mischief. In the spring after I got this bird, I procured an adult one as a companion, and as, after a month's absence, I found I could not distinguish them, I do not know what was my little favourite's subsequent career. One of the two soon disappeared, but the other remained on this pond for at least a year ; and I have little doubt that he at all events came back at last, and was one of the pair whose doings I have chronicled above, for I never saw any other dabchicks appear there spontaneously.

BLUSHING BIRDS

EVERY one who has kept and studied many kinds of birds must have noticed how very human they often are in their feelings and the manifestation thereof. Generally, however, birds have to depend on the sign-language of wings and tail for expressing their emotions, their features not being of the most mobile kind ; and thus the significance of their gestures may be lost unless one is well acquainted with them. There are, however, a few species which approach us in that their faces change colour under the influence of the feeling of the moment—in other words, they blush. And these, as will be seen in the sequel, are always birds of character, presenting marked peculiarities in their habits. Just so, among ourselves, it is only the higher white races who can blush, for a dark brown skin is not adapted to the change of colour generally associated with that phenomenon. The blush, among the manifestations of human emotions, is usually associated with the maiden's tremulous acceptance of the avowal of reciprocated love ; but it is as well to remember that it also tinges the countenance of her austere male parent, if he do not regard the

Ornithological and Other Oddities

proffered affection of her suitor with equal satisfaction. And so it is not surprising to find that the bird, "a sweet gushing child of Nature," works in the blush to express hatred and a number of other promiscuous feelings as well as conjugal affection. This is well seen in the most inveterate blusher among the birds, the common turkey-cock. Whether he be melted to tenderness by the sight of an attractive member of the opposite sex of his species, incensed by a rival, or stimulated to aggressive manœuvres by the sight of some creature which appears weak enough to be bullied with safety, the result is very much the same. His livid blue complexion changes to a lively scarlet, the fleshy horn on his forehead droops down below his beak in horrid flabbiness, and his dewlap and its pendant beads enlarge magnificently. Sir Bubbly-jock can, indeed, thus claim to have the most expressive countenance found on any living creature, not even excepting his owner and consumer. For which of us, however irate or affectionate in mood, can enrich his expression by extending his nose down to his chest, or assuming a series of double chins? In fact, the plastic features of the farmyard bully are even more remarkable than his change of colour, though even in this respect he stands far ahead of everything else in feathers. Nature seems to look with a some-

Blushing Birds

what unkindly eye on these revealings of the turkey's soul, for the wild bird, which lives under her strict discipline, has a much smaller and less richly-beaded dewlap than the tame one.

So far as I am aware, the power of changing complexion has always been supposed to be confined to the turkey among birds of the game and poultry kind, but I have recently found it to be shared by another bird, no distant relative of the common barndoor fowl. Our gallant roosters, which are always proverbially ruddy, are descended from the Indian and Burmese red jungle-cock, a game little bird resembling a "black-breasted red" bantam, except in its larger size and less bumptious carriage—a wild bird which may have to bolt for his life at any moment cannot afford to swagger much. Now there are several other species of jungle-fowl in the East, and one of these, the green jungle-cock of Java and some other islands, almost rivals the turkey in his changeable countenance. His pretty comb, which, with its delicate shading of puce and sea-blue, looks like the petal of an orchid, is always the same, but his wattle—for he has only one—will expand like the turkey's, and when at full stretch shows a yellow patch where it joins the throat, as well as the sunset tints which it shares with the comb; and at the same time the face, which is often only flesh-coloured, blushes as red as any tame chanti-

Ornithological and Other Oddities

cleer's. I found, when I had a bird of this kind under observation, that at first he would always blush and let down his wattle when he was shown a looking-glass, in a most ridiculously human way. As with the turkey, any sort of emotion appeared to bring on the blush and expansion of dewlap in this bird, but his speaking countenance was wasted on a common bantam hen assigned him as a companion, for she never seemed to appreciate his devotion as she might have done. His dignified attitude of courtship, however, enabled me to see that the absurd pirouettings of the barnyard rooster before his chosen mate are simply a slurring over of the more stately and pheasant-like slanted posturings of the wild bird, whose mates probably exact more ceremony and attention from their partner.

It is rather a far cry ornithologically from the poultry kind to their hereditary foes, the birds of prey, but here also we find this human peculiarity of countenance, strangely out of place as it may seem. There is probably no worse rascal in feathers than the caracara hawk or carancho of South America (*Polyborus brasiliensis*), who exhibits the combined villainy of crow and kite, with a few touches of his own. Yet this bird's bare face, as may be seen at the Zoological Gardens, will change from pale yellow to bright pink and back again. What the emotion may be

Blushing Birds

that causes the change I cannot say ; it may be an uneasy conscience, for the cause of the change of colour does not seem so obvious in this species as in the more simple-minded birds of the gallinaceous tribe.

To show what sort of mind the caracara actually has, I may mention that a bird of this species kept in the Calcutta Zoological Gardens, next door to a very greedy imperial eagle, would habitually take any extra tit-bit he received quite close to the partition, and eat it there in obvious enjoyment of the baffled gluttony of his neighbour, although he ran considerable personal risk in so doing. Indeed, he was ultimately moved farther on, and placed next door to a peaceful turkey-buzzard, lest his incurable malice should bring him to grief at the claws of outraged aquiline majesty.

Most people would look to the parrots for examples of the nearest possible approach to humanity amongst the birds, and it is interesting to find that among these also the phenomenon of blushing occurs. One species which exhibits it is the extraordinary great black cockatoo (*Microglossum aterrimum*) of New Guinea, a curious being with a portentous head and beak, and a puny body clad in plumage of a shabby black. Its face, unlike that of any other cockatoo, is quite bare and of a flesh-colour like human skin.

Ornithological and Other Oddities

But when the bird is excited, either by pleasure or anger, it flushes red ; at any rate this has been observed in a captive specimen. In addition to this very human attribute, the great black cockatoo shows what looks uncommonly like reasoning power in its manner of obtaining its favourite dainty. This is the kernel of the extremely hard and smooth kanary-nut, which the bird negotiates in this way : first it takes the nut in its bill and files a notch in the shell with its lower jaw ; then, transferring it to its foot, it bites off a piece of leaf and lodges this in an indentation of the huge upper bill. It then again takes the nut into its mouth, where the bit of leaf keeps it from slipping, while the edge of the lower jaw is applied to the notch previously cut with such force as fairly to split off a piece of the shell, when the rest of the process is easy.

The well-known macaws, which mostly have flesh-coloured or white bare faces, are also capable of blushing, both in angry and pleasureable excitement, and it is quite possible that many more birds possess the attribute if only they have a countenance which makes it possible ; for they must be barefaced in order to blush !

BIRDS FOR LONDON AVIARIES

EVEN the possessor of a town garden can derive much entertainment from an aviary, which need not cost much more to erect than a fowl-house, while the occupants are not unduly expensive.

The ideal aviary bird is the pretty little Australian budgerigar, or grass parrakeet, so familiar as the "fortune-telling bird" of our street prophetesses. The budgerigar is Mark Tapley in green and yellow feathers; he can be cheerful in a little cage, with his quills plucked to prevent him absconding when he is brought out to deal destiny at a penny a head, and in an aviary the thought of freedom never seems to enter his mind.

Instead, given a cocoa-nut husk to nest in, he sets about rearing a family, which feat he accomplishes with such success, that if you put three or four pairs of budgerigars in an aviary in the spring you will find by autumn that there will be so many surplus ones to sell that the price of the original stock will be paid over and over again.

It is necessary to start with several, for one pair of budgerigars are so taken up with "con-

Ornithological and Other Oddities

nubial fondlings and affectionate reciprocities" that they get fat and lazy and forget to go to nest; whereas the excitement of driving the neighbours from their front door and continually playing a game of "general post" so enlivens them that they all start rearing offspring in emulation of each other.

All one has to avoid is odd birds, for an embittered budgerigar which finds itself with no one to love it becomes a source of disastrous discord in the little community. I regret to say that in such a case the hens are the worst; and even when mated they are sometimes very spiteful.

Quotations of budgerigars show them often as low as five-and-sixpence a pair, with a reduction on taking a quantity, so that the outlay for stock would not be ruinous, though every time of the year is not right for turning them out of doors, so that they would have to be kept in a cage till the spring, if bought in winter.

The budgerigar, although a "love-bird," is not quite an angel, and, like the hyena, has a nasty trick of biting his enemy's feet in a fight. He can be checkmated, however, by associating him with the Java sparrow, that preternaturally sleek bird whose quakerish plumage of lavender-grey is at once set off and contradicted by a

Birds for London Aviaries .

black velvet skull-cap, white collar, and a big bulbous pink bill.

The Java sparrow is not an aggressive bird, but he stands up for his rights, and any bumptious budgerigar who attempts to hustle him will feel the kiss of his rosy beak on his own feet and be led to become a wiser and better bird. Java sparrows set off budgerigars beautifully; they are not very free breeders, but this does not matter, as they can often be got for sixpence each by taking half-a-dozen, being about the cheapest of foreign birds. It is almost impossible to pick out pairs, as they are more alike than the proverbial peas in a pod, so it is best to take the half-dozen and chance it. Budgerigars can easily be sexed, as a rule, by looking at their noses; the cock's is cobalt-blue, and the hen's pale blue or brown. When this distinction failed, a leading dealer, now dead, used to sort his stock by letting them all bite him, those which drew blood being the hens!

The process of the building of a bird's nest is always interesting, and the most wonderful of all nests, those of the weaver-birds, can always be seen in the making by any one who will buy a few males of the African red-billed weaver, which cost about half-a-crown each. This is a little bird much like a small hen

Ornithological and Other Oddities

sparrow with a bright red bill, and decked in the breeding season with a pink cap and breast and a black mask. He is an enthusiastic architect, and in France is always sold as "travailleur"—the worker. Even in a cage he will weave any fibrous material in and out of the wires till they are covered, and in an aviary he will construct beautiful round nests with the greatest enthusiasm, pausing occasionally to swear at fellow-craftsmen who presume to criticise his efforts or cast a larcenous eye on his materials.

Hens of this bird are often scarce, but as it is very unlikely to breed they are not of much use. They always bear the sparrow plumage, with a pale yellow bill instead of a blood-red one.

Wherever small seed-eating birds are kept, it is as well to have some larger kind which will live on the floor of the aviary and pick up the seed they spill as a change from its food of larger corn. The best for this purpose is the gold pheasant, as it bears captivity particularly well, while the male bird of the species is the most brilliant creature in existence. Indeed, it has been suggested that it was the phoenix of the ancients; and I can personally testify, having seen most of the birds of paradise in skins and four species alive, that it is

Birds for London Aviaries

a finer bird than any of these; while any visitor to the Zoo can see how far inferior are even the most gaudy parrots to its splendour. The only drawback is that this beautiful plumage does not appear till the bird is a year old.

The adult gold pheasant in his full splendour of gold and scarlet is an expensive bird, and even a yearling costs half-a-guinea. But gold pheasants can be had for nothing, or even at a profit, by buying a sitting of the eggs, which cost about a shilling each, and confiding them to a reliable hen. Then, as soon as the sexes can be distinguished, those which are not wanted can be sold off, and, with ordinary luck in the hatching and rearing, the initial expense can be more than covered. If breeding is not desired, all the young cocks can be kept, and will "grow in beauty side by side" and live in peace. But if a single hen is left with them, that aviary will exemplify natural selection and survival of the fittest till its owner is left with a fine collection of feathers suitable for salmon-flies and perhaps one dilapidated bird! Many people will like, however, to breed from their birds, and then the hens should be kept, and a cock procured by exchange from some other stock to avoid in-breeding. It will be noticed that all the birds I have mentioned are foreigners, but some of them, at all events, are British sub-

Ornithological and Other Oddities

jects, and in any case they are better for the present purpose than our corresponding English birds.

Britons never will be slaves, and British birds do not usually bear captivity so well as foreign ones, while their colours and habits are less attractive ; so that bird-lovers who have once kept foreigners usually prefer to see their country's birds at liberty, an enjoyment for which our parks give yearly increasing opportunities.

THE SCAVENGERS AT DHAPPA

THE gaunt and under-sized bullocks and horses that draw carts and cabs in Calcutta must, I think, shock every one who sees them, as they did me. Naturally their lives, though not by any means merry, are short, and when their span of existence is over they are carted off to Dhappa, on the outskirts of the city, to be boiled down for what grease can be extracted from their pitifully fleshless carcasses. It is, however, indeed an ill wind that blows nobody good, and the bovine and equine mortality is a source of livelihood to many of the local vultures. In order to observe these birds, I once went with two friends to the scene of operations. The driver of the "gharry," or cab, which we hired, seemed somewhat amused at being told the destination we desired to reach; and certainly, as we reached the trying-down place on the shores of the Salt Lakes, the appalling smell that greeted our noses gave some justification for his wonder at such an expedition. However, to any one ornithologically inclined, the sight was worth the stench. The boiling-vat stood close to the edge of a singularly filthy stream, and on the further shores the vultures stood as thick

Ornithological and Other Oddities

as sea-fowl on a guano bed, while between the vat and the water a hungry crowd awaited the fragments of very well boiled beef as these were tossed out from time to time. So thick were they that when I startled them they could not all get on the wing at once, and two or three incontinently fell into the water, and had to scramble out as best they could on the farther side. And it needed quite a near approach to startle them, for long immunity had rendered them nearly as tame as poultry. They were all one species, the Bengal vulture (*Pseudogyps bengalensis*), which, in spite of the localisation implied in its name, is the commonest kind all over India. It is a very shabby-looking bird, almost as big as a hen turkey, with dirty-black plumage, slightly relieved by a ruff of white down. There is a white patch on the back, and a white band along the under-side of each wing, but these marks are not seen when the wings are closed. The head and neck are nearly naked, and, as the complexion of those parts is singularly muddy, it does not improve the general effect. At least half the birds present on this occasion were young ones, and these were dirty brown all over, not enlivened by any white markings at all, so that they looked a shade more dowdy even than their elders.

Going on, however, beyond the piles of bones which lay back of the boiling-vat, we found out on

The Scavengers at Dhappa

the flats a few specimens of the next commonest vulture in Bengal, the long-billed vulture (*Gyps tenuirostris*). This is a very little bigger than the Bengal vulture, and is of a very dirty dun colour—all vulturine plumage looks dirty, somehow—and so at first sight might almost be taken for an unusually fair young individual of that species. But it has not only a longer bill, but a longer and thinner neck, and as these are devoid of even the miserable growth of down which besprinkles the nakedness of *Bengalensis* junior, its physiognomy is peculiarly gaunt and greyhound-like, and it looks the very image of famine.

Nevertheless, it appears that this miserable-looking bird can afford to be dainty, for the overseer of the boiling-works told us that the reason why the long-billed vultures kept aloof was, that they did not consider boiled beef, whether of horse or ox, good enough for them, but hung about till the scavengers' carts, which would arrive later on with the general refuse, should provide them with a more tasty, meal in the shape of dead dogs and rats, which could be discussed in all their natural crudity and flavour. The extreme length and nakedness of the necks of these vultures was particularly interesting in one way; it enabled one to see easily how a bird's neck is stowed when he is on the wing, supposing he does not stretch it

Ornithological and Other Oddities

out like a duck or stork. On startling the birds, their heads were seen to be drawn back to the shoulders, while the neck fell below in a regular loop, giving a most curious effect, which is lost in species which have less length of neck and more clothing for what they do possess. Unfortunately, none of this kind of vulture were easy to interview, for they were much shyer than the rest.

A gang of "dhomes," or native scavengers, were at work in front of the boiling-vat, skinning and cutting up the carcasses as they were brought in, and the overseer already mentioned was kind enough to put a freshly-skinned carcase of a horse at the disposal of the birds, in order to give us a chance of seeing them feed in a more natural way than on boiled bits. One would have expected the birds to rush on this more appetising repast at once; but they mistrusted so much generosity, and we had to stand off a little before they would fall to. Then the horse disappeared under a crowd of birds, there was a sound of "rugging and riving," and in a marvellously short time it was a clean-picked skeleton, showing that they really did appreciate *cheval au naturel*.

Overhead the kites were constantly wheeling and circling, on the look-out for morsels sufficiently small to be carried off for private consumption, for *Milvus govinda*, like Private

The Scavengers at Dhappa

Ortheris, "'ates a 'owling, clawin' mess," and dines by himself if possible, the possibility depending largely on whether his fellow-kites have themselves dined recently or not. Of other birds of prey we only saw a marsh-harrier (*Circus æruginosus*) just before we arrived at the scene of vulturine banquets, and wondered what he was doing in such company; and a sea-eagle of some sort, which made a splendid stoop down to the surface of the foul water, and rose with some awful garbage hanging from his talons, so that his business, at any rate, was plain enough, although he evidently had his notions about regal privacy at meals. Altogether the trip was well worth making, and I should advise any "globe-trotter" who visits Calcutta not to neglect Dhappa if he cares for birds—but let him take a smelling-bottle!

THE BIRDS OF AN EASTERN VOYAGE

THE monotony of the long voyage to India is rendered a good deal less oppressive if one knows and takes an interest in the various sea-fowl which from time to time present themselves to the view of the passenger on one of our great liners, and the observation of these suggests problems of no small interest. Take, for instance, the distribution of the various species of gulls. These birds are much alike in their habits, and yet some of them are strangely localised, while others have an enormous range over both cold and warm seas. The lesser black-backed gull of our coasts may be met anywhere, from "the channel's chops" to Aden, but the very similar herring-gull is largely replaced in the Mediterranean by the yellow-legged herring-gull (*Larus cachinnans*); indeed, this is the only herring-gull I have ever identified in this sea in the course of several voyages out and home.

It is a far more beautiful bird, with its

The Birds of an Eastern Voyage

bright yellow legs and orange eyelids, than our somewhat anæmic-looking species. Authors call it a "climatic race," but when it bred, as it frequently did, in the gull-pond in our Zoological Gardens, the young birds, when adult, were true to type, in spite of captivity under an alien sky.

The fact is, "climatic race" is a very misleading term; birds from southern localities are often richer in colour than their representatives in colder lands, but sometimes the different types may occur in the same locality. Thus, in the case of the above-mentioned widely-ranging lesser black-back, the colour of the black wings may vary from a real black to quite a light slate colour, and the extreme forms are found both in the North Atlantic and the south of the Red Sea. The explanation is probably simple enough; in certain forms a dark or light coloration is correlated with constitutional peculiarities which are suited to certain environment, and hence two species arise in different parts of the bird's range, while in others this is not the case, and the extremes can continue to exist side by side, although a change in the conditions might result in the disappearance of one variety. Climate, of course, may be the determining factor in some cases, but food and the disposition—courage or intelligence—of the

Ornithological and Other Oddities

different colour-forms, may also enter into the problem as to which is to survive, so that it is begging the question to attribute the issue to climate alone.

In the Red Sea one makes the acquaintance of two very peculiar-looking gulls which are always confined to hot climates. Both are about the size of our common gull, so called—I cannot recall having seen it on any Eastern voyage—but they differ much in colour; one, the *Larus leucophthalmus*, which I have only seen at the head of this sea, and then not often, has dark slate-coloured wings and a jet-black head with white eyelids, while the other, *Larus hemprichi*, which is especially abundant towards Aden, where it is very tame, has snuffy-brown wings and a brown hood, set off by yellow legs and bill, the latter with a red patch near the tip. The young of both these species are of a mottled brown, like so many young gulls, and hence are not so striking in appearance. The brown Hemprich's gull will not unfrequently even settle on the ship; at Aden it is frequently to be seen standing on the iron buoys in the harbour, under a sun which must certainly make the metal too hot to be endured by a human foot. Another brown sea-bird very much in evidence in the Red Sea is the booby (*Sula leucogaster*), a species of gannet. It is



PAGAN PIGEON (GOOSE OR COLT'S TEAL) (p. 183)
 Seen for the first time in the Americas



PAGAN PIGEON (p. 183)
 COCK MONAL (p. 179)

The intense lustre of the plumage is apparent even in a photograph

The Birds of an Eastern Voyage

considerably smaller than our "solan goose," and a far less beautiful and interesting bird. Its colour is simply brown, with the abdomen white in adults, and the bill and feet brimstone yellow; it flies low, and appears never to make the magnificent swoops so characteristic of our bird. Indeed, although flying-fish, at any rate, are very abundant, I never saw the booby catch anything except when joining the other sea-fowl in harrying an unfortunate shoal of fish which was evidently in difficulties with enemies below. At such times the scene is very lively, gulls, boobies, and terns all uniting in making the most of the opportunity at the expense of the unfortunate fish. Terns, at any rate the grey-and-white species, are not very easy to identify, especially in strange seas, but there is one which is always readily recognisable, and very abundant in all warm waters. This is the sooty tern (*Sterna fuliginosa*), a very strikingly-coloured bird, black above and white below. This is the bird known as the "Wide-awake," one of its leading breeding-haunts, "Wide-awake Fair," on Ascension Island, being very well known.

One of these birds once came on board a ship I was on in the Indian Ocean. It was thin, and so famished that it snatched and swallowed raw meat when held in the hand, and

Ornithological and Other Oddities

it seemed almost unable to fly. I kept it for a few days, when it died, having evidently been brought, by privation or disease, too low for recovery, as seems often to be the case with sea-fowl thus accidentally captured.

On a voyage to the East one must not expect to meet the most remarkable of all sea-fowl, the albatrosses and frigate-birds, though one of the former has been recorded in the North Atlantic, and the latter have occurred in Indian seas. But another very remarkable bird, the tropic-bird, is pretty certain to meet the voyager in the Red Sea and the Indian Ocean, and never failed to excite my interest. The species was, no doubt, the short-tailed tropic-bird (*Phaethon indicus*), but there is a great general resemblance between the various species, and others may occur besides this. The tropic-bird, as I have seen him, is essentially a bird of mystery. You may find him at any distance from land, even in the Indian Ocean, where sea-birds are few, but you will rarely see more than two together, or even in a day. He flies high, with a continuous rapid beat of the wing, and his white plumage, red bill, and long parrakeet-like tail make him a striking object in the cloudless blue. He seems merely to come to look at the ship, and then resumes his course. I never saw him swoop on any prey, and only two or

The Birds of an Eastern Voyage

three times on, or rising from, the water. Ancient tradition, had the bird been a European one, would have made it the abode of some spirit on which was laid the curse of eternal wandering, for there is something uncanny about the ceaseless, yet hurried, flight and solitary appearance of this beautiful creature. The storm-petrel, on the other hand, has not in any way a striking or romantic appearance as one meets him in the Atlantic and Mediterranean, where he is a pretty constant attendant in the ship's wake. He is commonly thought of as "*noctem hiememque ferens*"—a bird of storm and darkness, pictured as skating with uplifted wings up and down huge billows. As a matter of fact, he is constantly abroad on a glassy sea under a glaring sun, and looks so exactly like the house-martin, with his dark plumage enlivened by a white spot on the back, that most people would at the first glance take him for that bird, so similar is the coloration, size, and style of flight. Of course, the petrel is dark below, not white like the martin, but the former always flies low, and the latter under these circumstances also looks nearly all black. I have never seen the storm-petrel run along the water, and not often seen it settle. Of other petrels, one is certain to see some one or other of the species of shearwaters, and these

Ornithological and Other Oddities

in any sea and at any distance out. They take no interest in the ship, but skim the waves on their own mysterious business, with the down-curved wings alternately flapped and held rigid, and turning every now and then from side to side. They are usually dark above and white below, and it is curious how one loses them as their back and wings are presented to the view against the dark sea, and picks them out again as a turn exposes their snowy breasts to sight. Indeed, in spite of what one reads about the protective nature of the white coloration in sea-fowl, one soon perceives that their white plumage really makes them strikingly conspicuous in any ordinary sea, though among foam and breakers they would no doubt harmonise better.

I have never, however, been able to discover against what foes adult sea-fowl need protection; birds of prey do not hunt out at sea, and, indeed, Darwin's view was that a conspicuous coloration was of advantage to the birds as a means of recognition in the waste of waters. The conclusion one is irresistibly led to as the result of observing sea-birds in a long voyage is that of Mr. E. K. Robinson, that the great trouble of marine bird-life is a continually craving stomach, and hence it is that the interest felt in sea-birds by people on board ships is so cordially reciprocated by the birds themselves.

SOME EAST AFRICAN PETS

“ You must take care not to touch him when he have his meal, sir, for he soon turn his temper round.” The speaker was Moya, a Zanzibari ; the person spoken to was the present writer, and the creature spoken of was a somewhat mangy specimen of the banded mongoose, which I had just purchased at Moya’s recommendation, and which formed my first introduction to African pets. That is to say, as far as keeping them myself went ; for I had not been long in Zanzibar before seeing many evidences of a love for tame animals among the population. Grey parrots were everywhere, perched on pegs or confined in cages deftly fashioned, apparently out of old kerosene tins, by Indian tinsmiths, and outside many a Swahili hut hung a wooden cage containing a species of turtle-dove (*Turtur damarensis*), which looked like a grey variety of the familiar domestic bird at home. The chiriko, or native canary, was also in favour, and now and then one came across a monkey ; while the streets were enlivened by picturesque-looking goats, bright-coloured hairy sheep, raw-boned Malay fowls, and ruffling, swaggering Muscovy ducks ; all

Ornithological and Other Oddities

these animals being frequently attended by their respective young. The yellow prick-eared pariah dogs were merely tolerated scavengers, but I presume grimalkin was on much the same footing as at home, though more lanky, miserable-looking specimens of the feline race I never saw. And this brings me back to my muttons, or rather my mongoose. After Moya's caution I carried her rather gingerly upstairs, and secured her in an empty room, close to the bedroom I occupied in the Hotel Perrot; the conversion of said bedroom into a combination of menagerie and laboratory being most nobly endured by mine host. Then I went out on some zoological excursion or other, to find, on my return, my new acquisition imprisoned in a safe in the kitchen, whither she had penetrated on getting loose from her string, and where, according to the cook, she had come near killing the cat, an exceptionally hideous specimen, with a mew calculated to wound the sensibilities of any right-feeling mongoose. The cook's lively imagination must, I fancy, have misled him as to Jo's bloodthirstiness on this occasion; on a subsequent interview nothing but bad language passed between her and puss. In fact, for a mongoose she was very mild, and when introduced to a chicken, seemed far less inclined for a fight than was the fowl—which was not perhaps to be wondered at, for the

Some East African Pets

Zanzibar poultry are fearful wildfowl indeed ; I have even seen one carrying off a snake to devour, and was told they frequently kill these reptiles. But Jo showed no desire to attack birds— a curious trait in a mongoose—though she greedily pounced on lizards, and would even tackle a crab, which was apt to prove too much for her, her method of attack being to fling the crustacean on the ground with her forepaws, thinking thereby to break him as she did an egg. I usually brought her down at meal times to be fed, tying her up close to my chair, as she had an inconvenient habit of climbing up chairs and trouser legs when allowed her liberty. With all her eccentricities, she was a most amusing little pet, and had learnt to come at call and follow me about, when she met with an untimely end. When she had been in my possession barely a week, I left Zanzibar for Mombasa, and I was hospitably entertained during the first part of my stay at that port by Mr. F. Pordage, whose pink and green bungalow on English Point was a perfect zoological garden. But, alas ! I had not been there half-an-hour before poor Jo fell a victim to a sudden assault on the part of two fox-terriers, which attacked her as she was tied up on the verandah. I was very much grieved at thus losing her, for one soon becomes attached to

Ornithological and Other Oddities

these quaint little animals, which, though Moya's caution with regard to them is quite necessary, are nevertheless very amiable as a whole. A great pet with everybody was the baboon Jenny, who lived in a box on a pole. She was an amiable animal, especially popular with the blue-jackets, who never failed to pass the time of day with her whenever they were on shore at Mombasa; nor was she without accomplishments, being able to drink from a bottle in the most skilful manner. She usually treated Tim, my host's dog, with contempt, either seizing him by the hind legs and throwing him over the compound fence, or retiring to her box, where she sat in the most supreme indifference to his frantic efforts to pull her down by the rope attached to her waist. A great friend of Jenny's was a pig, and it was most laughable to see her seize it by the hind leg, rolling over and playfully biting it till she evoked a suppressed squeal of remonstrance. When tired of play the two creatures would lie down together on the sand, the monkey's head pillowed on the pig's bristly side.

On the death of Jo, I vowed that the next animal I kept should be one capable of killing a dog in self-defence, if necessary; and by the kindness of Mr. T. Remington, with whom I stayed during my last fortnight at Mombasa, I

Some East African Pets

became possessor of a young serval, which, had it lived to grow up, would have been formidable enough to defy the most truculent tyke; since the serval is one of the largest of that section of the *felidæ* which are usually known as tiger-cats, and branded with a reputation for fiendish ferocity.

By letting him run about the bungalow and sleep in my bedroom, however, and petting him whenever he would let me, I managed in time to get him as quiet and playful as a tame kitten. His relations with the other pets of the bungalow were at times strained; towards the monkey he maintained an armed neutrality, but he cast a sinister eye on the parrot, and had on one occasion a furious tussle with the mongoose. This animal was smaller than my lamented pet, being hardly bigger than a rat, and of a uniform pale brown. It belonged to my friend, and was very gentle, habitually sleeping nestled up on his shoulder all night. But it was not without spirit, and when the serval tackled it, it pinned him by the hind leg with considerable determination; in fact, for some five minutes after they were separated, that cat's profanity was awful, and he had to adopt a tripod style of locomotion for some days. To this day I do not know whether his leg was really not broken just above the hock; but his recovery was very rapid, and

Ornithological and Other Oddities

his tameness interested every one. I once saw him perched on the side of Nell, our pariah dog, as she lay lazily on the sunny verandah. Nell was a good-natured beast; whatever faults pariahs may have, they are not wanting in attachment—at least, in this part of the world. A little petting made our bungalow alarm—I do not know what sort of guard she would have made—so fond of me that she would follow anywhere, and when I put out from the pier at Mombasa to go on board the homeward-bound steamer, she swam out so far that I had to take her in for fear of sharks; and it was not without difficulty that we got her off the steamer to be conveyed to the shore. One would have thought that she knew I was leaving for good, though it is difficult to see how she could have found out, unless she associated much packing and carrying with a permanent removal from the bungalow to which she had been for some time attached.

Mr. Remington had put on board the steamer two older serval kittens for the Zoo, which had just been sent him from Malindi. They were undoubtedly fine specimens, but, being older and unused to society, were none too amiable; and when mine was introduced to them at the time of their first meal on board, there was a fearful-sounding triple conflict, in which, however, no real harm was done, the only result being that



W. S. Hoar

W. S. Hoar

SERVAL (p. 245)

This cat has the leg-longer well as the cat



W. S. Hoar

W. S. Hoar

JAPANESE MONKEYS (p. 280)

Father, mother, and their child born in England

Some East African Pets

mine, though hardly more than half the size of the other two, established himself on a footing of perfect equality with them, and their subsequent gambols were most amusing to see. The older ones proved failures as pets; when let out on deck they would rush into out-of-the-way corners, whence they were extracted with much difficulty and some risk to one's fingers. Sheitani, my animal, however, got more and more gentle; would follow me up and down the deck, and climb into my lap when I was sitting down, always ready for a game. He seemed more peacefully disposed towards other animals as well, for when I let loose my tame guinea-fowls on deck near him, he made not the slightest attempt to seize them, though such birds must, one would think, be the serval's natural prey. Neither were the birds themselves alarmed; but they were not easily frightened, for, though "born very wild," like Artemus Ward's crows, these guinea-fowls are easily tamed, and my specimens were absolutely impudent, abusing the freedom of range which they shared with Sheitani by getting into all kinds of mischief and awkward places. At one time I would find one amusing himself by pecking the unfortunate fowls in the coop; on another occasion all three were sitting on a bulwark, whence a chance gust or lurch of the ship would

Ornithological and Other Oddities

have sent them all into the sea, as their wings were clipped.

However, they survived all chances of disaster, and finally reached the Zoo. I wish I could say as much for my poor cats ; but, alas ! they all died of dysentery on the voyage, the last just as we entered the Thames. I was told by people who had tried, that these creatures are not always easy to rear ; but I was very sorry to lose them, especially Sheitani, for I am not likely, I fear, to find a more pleasant and amusing pet for many years to come.

A PLEA FOR PRODIGES

It has been the fate of several animals, which are now among the most intimate acquaintances of every budding zoologist, to be at some time or other absolutely disbelieved in. The first specimen of the duck-billed platypus which greeted the eyes of naturalists was not inexcusably set down as a manufactured article; and there have even been those who have doubted the dodo, that grotesque fowl having at one time almost "won its way to the fabulous," as Thucydides puts it. Now there is a very ancient and respectable family of fish which was lately in this unfortunate position, at least as regards one of its few representatives. Every visitor to the Reptile House at the Zoo knows the mudfish, or, if he does not, he ought to. This gifted creature possesses both gills and lungs, and specimens of him usually inhabit the tank at the farther end of the house, labelled "African *Lepidosiren*." There was supposed to be an American *Lepidosiren*, but evidence of its existence was so extremely scanty that it had fallen under the cold shadow of scientific doubt, when one fine day fresh specimens from South America

Ornithological and Other Oddities

arrived. Some of these were exhibited at a meeting of the Zoological Society, and thus the American mudfish received a definite social status as a credible creature; just as, many years ago, did the apteryx, faith in which was beginning to wane, when a specimen was exhibited to convince scientific Thomases.

The moral of these facts is obvious. A later age has often been too ready to set down some of the remarkable zoology of the classical writers as the unadulterated product of an unlimited gullibility. The most monstrous fables, however, are apt to contain a core of truth; and these casual reappearances of obsolescent animals may well stimulate us in the search thereof. Take the phoenix, for example. Even in Tacitus's time information about this celebrated bird was vague and conflicting to a degree, though the historian seems to have had no doubt but that it was *something*. One turned up in the days of Tiberius, creating great excitement among contemporary scientists. Some people, however, said it wasn't genuine, a phoenix not being due for several centuries to come. These would have it that your true phoenix only appeared at intervals of 1461 years, instead of 500, as the common report went; and that only three were on record, which had flown into Heliopolis, the Egyptian

A Plea for Prodigies

City of the Sun, "with a multitude of companion birds marvelling at the novelty of the appearance." The distinguished stranger was, in fact, being mobbed, as some rooks mobbed a golden oriole some years ago; and here one comes to the core of truth in the legend. The dates, no doubt, are untrustworthy; but in all probability some strange bird did now and then appear in Egypt, and met with a not unnatural reception among its fellows; though, on the other hand, the local ornithologists of the period were so far superior to their modern representatives as to study the bird, instead of slaying it and having it stuffed, or rather mummified. The pity is that their accounts of it were so variable that its personality is hopelessly nebulous; the only point on which they agreed seemed to be that it wasn't like anything else. But, for all these difficulties, we may yet cherish a belief in the phoenix, in view of the celebrated case of *Dinomys Branicki*.

An inhabitant of Peru got up one morning, a good many years back, to find an unknown animal strolling about the backyard. The visitor was not unlike a paca, an overgrown, unseemly-looking rodent, which you may see any day in the large rodents' house at the Zoo. But it had a tail—which appendage is denied to the paca—and was otherwise peculiar.

Ornithological and Other Oddities

The bold Peruvian smote it with the sword, and its remains were subsequently scientifically examined. But the curious part of the story is that the animal was not only unknown to its destroyer, but to everybody else in the district. No one was personally acquainted with the deceased, or could say whence and wherefore he had come. Thus it is fortunate that he fell into scientific hands, and had his obsequies decently performed. For since then until a year or two ago no other specimen turned up. *Dinomys Branicki* remained unique; so much so, that, although he has relationships with the everyday guinea-pig and agouti, a special family has been created for his reception.

If there is any story considered worthy to rank as equally fabulous with that of the phoenix, it is the generation of bees from dead carcasses. The schoolboy, painfully ploughing his way through the Fourth Georgic, chuckles at the recipe for producing a swarm therein detailed, and concludes that Virgil did not know a bee from a bluebottle. Wasps were produced, according to classical authorities, from the carcasses of horses; but as none of them appear to give detailed instructions for vespiculture, we may presume those insects were then considered as great a superfluity as they are at present.

Science, in the person of Baron Osten-Sacken,

A Plea for Prodigies

the great authority on flies, has come to the rescue of this venerable myth. The ancients, it seems, did mistake a fly for a bee; but the fly was not the harmful and scarcely necessary bluebottle, but a very different species, the drone-fly. This insect is extremely like a bee, and is believed to find the resemblance serviceable as a protection. The present writer in his school-boy days has, he regrets to say, often made use of it for a practical joke on the feminine members of the household, and it may be mentioned, as a caution to youths similarly inclined, that people have been known to mistake the bee for the fly, with unpleasant results to themselves. This fly, the Baron informs us, deposits its eggs on carcases, and the maggots, developing in the putrid mass, result in a brood which might easily be mistaken for genuine bees. This explanation of the old story receives further support from the fact that there are nearly-allied flies which resemble wasps, thus showing how these creatures were supposed to originate from horse-flesh.

After this we may well feel that some explanation may be found for the wildest creations of the unscientific imagination in days gone by. Suppose Herodotus, who has so often been scoffed at by commentators who knew far less natural history than he did, had received rumours

Ornithological and Other Oddities

of Australia, and that country had never been discovered! His artless accounts of deer-like animals which jumped and carried their fawns in pouches, of birds which hatched their eggs in a heap of rubbish—the said eggs giving birth to full-fledged young—and of the crowning impossibility of black swans, would have received the severest stricture; while as to the duckbill, so intrinsically unlikely an animal might have been passed over with a word of contempt by classical critics. The discovery of Australia has put these wonders on a scientific footing, but who knows how many animals, as strange in form as the kangaroo, and in habits as the brush-turkey, have become extinct, to leave their distorted likenesses in classical literature? When we realise this, we may begin to see that the ancient was not so very much worse than the modern traveller, who calls every bald-headed bird a turkey, and lumps together a heterogeneous assemblage of small carnivores under the common and convenient name of “cats.”^c

THE ZOOLOGY OF HERODOTUS

HE must be a man of dull appreciation who fails to give a due meed of admiration to the historian of Halicarnassus; and yet this most charming and genial of classical writers labours under grave imputations of want of accuracy in several particulars, to the extent that some have pleasantly called him "the Father of Lies." It is not my intention here to endeavour to vindicate his character as an historian, or to draw odious comparisons between him and the presumably veracious Thucydides, but briefly to pass in review some of his zoological statements, which have usually been held to indicate a preposterous gullibility on his part.

We cannot, perhaps, commence better than with his account of the crocodile; and, considering this calmly, it cannot be said to be by any means an absurd narration. The only glaring inaccuracy in it is the statement that the reptile cannot see under water; the old belief that it moved the upper, and not the under, jaw, is countenanced by appearances, if not by anatomy. But—mark the danger of a universal condemnation—commentators have gone on to scoff at the

Ornithological and Other Oddities

story of the crocodile's bird-friend, the *trochilus*, as "a pure myth"; and even the existence of the leeches, which the bird took from the reptile's mouth, is characterised as "an absurd statement," and "contrary to all reason." As a matter of fact the crocodile's mouth is infested by a peculiar parasitic leech, and recent evidence leaves little doubt but that one or other of two species of plover does actually render the service credited to it by Herodotus, and one of these has actually been observed to warn the crocodile of danger.

From the *trochilus* the transition to the ibis is easy, and here Herodotus's clear and careful account is in striking contrast to the mistakes of modern writers about these birds. An ibis at the Cape, which is black with a bald red head, is set down by the Boers as a "wild turkey," and in Egypt the cattle-egret, a small white heron, is pointed out by the dragoman, and accepted by the flock of tourists he is shepherding, as the true sacred ibis. It would appear from Herodotus's account that his "black ibis"—believed to be the "glossy ibis" of modern ornithology—was the snake-destroyer, though the white species is that which is found embalmed, and has received the scientific name of *religiosa*. Both kinds are usually to be seen at the Zoological Gardens, and the glossy ibis



Threskiornis

SACRED IBIS

H. P. Fraser



Threskiornis

GLOSSY IBIS
Quadrifrons - Egypt

H. P. Fraser

The Zoology of Herodotus

occasionally visits this country, to be, of course, shot by unscientific "record" hunters.

The winged snakes which formed the prey of this beneficent bird are, in the view of many, the most outrageous of Herodotean impossibilities. Now, no one would assert that real flying serpents ever could or did exist, or that Herodotus ever saw their bones, or that the puny ibis could have been an efficient exterminator of such creatures. But it must be recollected that an air-traversing snake is not an utterly inconceivable animal; we have the flying lizard, which glides through the air for some distance, supported by the parachute formed by the skin connecting its elongated ribs. A similar rib-supported expansion of skin forms the "hood" of the cobra. These things being so, a parachutic arboreal serpent is not an impossible animal, although there may be no evidence for its existence. It is also possible that there was a belief about the Egyptian cobra similar to that which now obtains in some places about the Indian one; this makes the snake in its old age grow very short in the body, the "hood" meanwhile expanding into wings, wherewith the reptile flits about on a mission of destruction. That Herodotus saw some bones is no doubt correct enough; that he was wrong in his determination of them is not wonderful, for in later ages the bones of

Ornithological and Other Oddities

mammoths were taken for those of human giants.

The monstrous ants are, it is to be feared, entirely indefensible. Physical limitations would probably make any insects "somewhat larger than foxes, but less than dogs," quite impossible. The biggest known creatures formed on the plate-armour plan of the arthropoids are, and always have been, aquatic. Were it not for the mechanical disadvantages under which the muscles of insects work, Herodotus's ants might well have existed, and been all that his informants pictured them, as any one will admit who has studied ants in the tropics, where, as has been well remarked, the sluggish need not go to the ant, as that industrious insect will save him the trouble.

The Herodotean account of the hippopotamus is, of course, extremely inaccurate; no one needs to be told that it has not the mane and tail of a horse. But the Greeks must have seen in it some resemblance to a horse, or they would not have called it the river-horse; and, indeed, the comparison is not worse than that which made the Teutons find a likeness to the horse in the walrus. While on the subject of names, it is interesting to note that Herodotus observes that the crocodile was so named by the Greeks from its resemblance to a lizard, just as a corruption of a Portuguese name later gave us the word

The Zoology of Herodotus

"alligator"; and it seems that on the island of Myconos a species of lizard is still called crocodile in modern Greek.

The phoenix is supposed to be so hopelessly fabulous that it is useless to speculate as to its nature; although there is something to be said for the theory that identifies it with the golden pheasant, the most brilliant of living things, and a creature which, being easy to keep alive, may have, albeit very rarely, been passed from hand to hand all through the East sufficiently to keep up the tradition. It is true that Herodotus compares its form and size to the eagle's; but, on the other hand, a word he uses in describing the plumage—golden-haired—is singularly appropriate to the golden pheasant, and to that only among birds. And as shape impresses the unskilled observer much less than colour, between the picture he saw and his remembrance of it some distortion may well have occurred. It must be remembered that the originals of supposed mythical animals have a way of turning up at times. When a frigate-bird was captured in New Zealand, the Maoris who saw it were agreed that the long-winged wanderer was the true "hokioi," a bird supposed traditionally to spend the whole day in the air. And when a bird-of-paradise was first brought alive to Calcutta the then reigning Amir took the trouble to

Ornithological and Other Oddities

send a man all the way from Kabul to Calcutta to examine it, and was convinced that it was the legendary "huma" of Eastern tradition.

The weird creatures which annoyed the gatherers of cassia might well have been the great fruit-bats of the East, probably bolder in those days than they would dare to be now when they seem never to take the offensive on being disturbed. The aquatic habitat assigned to them and to the plant is wrong; but the latter is at any rate a reality, being identified with the cinnamon laurel. And as to the supposed ferocity of its bat-like guardians, it is not so very long, comparatively speaking, that Linnæus credited the above-mentioned "flying-foxes," which certainly do "screech horribly," as Herodotus makes them, with being blood-sucking vampires, a menace to poultry-yards and sleeping slaves. It was not till Darwin travelled in Chile that the real vampire-bat was brought to book and given a local habitation.

It is thus possible that some at least of our author's wonderful travellers' tales have a foundation in fact; where his real delinquencies lie is in accounts of more familiar animals. The lioness, for instance, is not so desperately unprolific as only to produce one cub during her lifetime, supposed to sterilise her by the action of its sharp claws on the walls of the uterus.

The Zoology of Herodotus

The mistake he makes about the camel is also a most preposterous one; for, premising that he will not describe this animal, as being already well known to the Greeks, he gravely remarks of it, as a peculiarity which has escaped their notice, that it has in its hind-legs four thigh-bones and four knee-joints. After this remark of his about a creature which was so familiar, it is well for students to be cautious in disbelieving entirely in any given animal he describes because of monstrous impossibility of detail. And when we remember that so generally respected an observer as Gilbert White inclined towards the preposterous notion that swallows hibernated under water, whereas Herodotus knew of their migration; and that the sage of Selborne likewise committed himself to such absurdities as the statement that coots, moorhens, and dab-chicks flew in an erect position, and that ducks and geese did not roost on trees because they were web-footed, we should not be too severe on the errors of a writer who was at any rate the first European naturalist whose work is preserved, whatever may be thought of his merits as a historian.

THE TREATMENT OF ANIMALS IN INDIA

THE lover of animal life needs to be but a very short time in India to be both delighted and pained at the common relations between man and animals in that country, owing to the very contradictory treatment meted out to the lower creation by the natives. The black side of the picture is all too obvious, and those who have never been to the East can hardly realise the state of abject misery in which some of the domestic animals exist there. The greatest sufferer is probably the bullock, the ordinary beast of draught in India. He is habitually either underfed or overworked—the result in every case being that his bones are ready to start through his skin; while his neck is too often cruelly galled by the yoke, and the twisting of his tail, as a means of making him increase his pace, is carried to such a reckless extent that it is common to see animals with tails kinked by dislocation of the joints, or even diminished by half of their length by the mortification of the over-twisted portion. At

The Treatment of Animals in India

any rate, this is the case in Calcutta, to which my remarks here must be understood chiefly to apply, though there is abundant reason for the belief that such ill-treatment is general in the country.

The buffalo, which takes the place in India of the cart-horse in England, being used for slow heavy work, seems to be better treated; his condition is not miserable like the bullock's, nor is his tail twisted in driving him. The buffalo is an animal of much strength of character, and would probably become dangerous if over-driven or tortured; it is known that the wild animal is peculiarly savage when wounded, and will in such case deliberately attempt to revenge himself.

Sympathisers with the poor bullocks should, however, remember that these meek creatures have an aversion to Europeans, and are not to be approached without care. I heard of a case during my residence in India in which a yoked beast suddenly and without provocation knocked down a European standing near, and if it had not been under the yoke would undoubtedly have gored him. Such cases are no doubt exceptional, but they are worth bearing in mind, as the extreme quietness in the ordinary way of the Indian cattle is apt to generate too great a confidence in their gentle behaviour; for as a whole they are

Ornithological and Other Oddities

certainly far milder-natured than European cattle, which are descended from a different species.

There is much in the London cab-horse's lot that moves us to pity, but he is well off compared with his fellow-toiler in Calcutta, and the contrast strikes every one who first returns from India on leave, as well as natives who visit England. The Calcutta horses are under-sized, ill-shaped creatures, half-starved, slow, and weak. Two are commonly harnessed to one "ticca-gharry," a vehicle somewhat like our "growler," and the only food one sees given to them is grass, a supply of which is carried in a net under the vehicle; when this halts, the net is fixed on to the pole, and the poor drudges have a meal. The horses in Bombay are much superior animals, and are probably better treated, but, generally speaking, the ordinary working horse of India is a poor, ill-used creature, as far as I saw. Needless to say, lameness and harness-sores receive little commiseration. The ass is treated much in the same way, or, if anything, probably rather worse. The dog and cat appear to lead a life very similar to that of the pigeons so common in large towns everywhere; they are ownerless, and have to shift for themselves, but are not ordinarily molested. I do not think the cats are very miserable, as in a country like India there is much small prey to be obtained at all times of the

The Treatment of Animals in India

year ; but the “ pariah ” dog often has a wretched look, and doubtless suffers much from want, as he has to share his food of carrion with kites, crows, and jackals. Some attempt is made to keep down these ownerless curs, and it is needed, as, with the jackals, they keep hydrophobia alive. If scavengers are needed—which they certainly are at present—their work may well be left to the birds above mentioned, which have not the disadvantage of fostering this dreadful disease.

The goat, commonly to be seen about the streets, is a cheerful creature, and I do not think it has much to complain of ; natives, as I shall have occasion to mention later on, are not wantonly cruel, and the goat is so accommodating in its appetite that it is easily fed, and appears in better condition than the cattle and horses. Of sheep I can say nothing in particular, as they are not so much in evidence as in England.

Poultry run about everywhere, and seem to be seldom fed. Except those—a special breed—used for cock-fighting, they are not treated unkindly as a rule, and are very tame. When needed for use, however, I fear they have to suffer much, as in the Calcutta market, though troughs were affixed to the spacious coops used for their temporary lodgment, these were never kept full of water, for the want of which the

Ornithological and Other Oddities

ducks at all events seemed to be greatly distressed; of course they *were* fed and watered, but the supply was not kept up as it should have been.

There was nothing in their treatment, however, to compare with the shameful ill-usage of wild birds in the same market. These poor creatures—ducks, snipe, and other birds passed off as such—were netted or snared, and then kept starving and thirsty until sold, or killed as a last resort. The ducks often had their legs dislocated, and the longer-legged birds were frequently too cramped to stand, it being the practice of the catchers to tie the birds' legs together at the hocks by means of the long flight feathers of the wings. The legs were untied when the birds came to market, but of course the mischief was then done. The smaller birds, such as snipe and sandpipers, were kept tied in bunches as if they were so many onions, and handled just as carelessly.

So thirsty were these poor things, that almost any bird one bought in the bazaar would greedily drink while held in the hand, to do which a wild creature must be sadly reduced. Of course attempts have been made from time to time to bring about an alteration of this state of affairs, but with little effect as yet, though I must admit that before my time, judging from accounts by

The Treatment of Animals in India

earlier observers I have read, the birds were treated even worse than at present. The most practicable remedy would certainly be the prohibition of the sale of living game, except quails, which do well even in close captivity.

The disgraceful practice of sewing up the eyes of birds to keep them quiet seems to be on the decline—at any rate I saw few cases of it; and the large birds (storks, cranes, &c.) brought down for sale to be kept alive were in my time hooded with little cloth bonnets.

And now a word as to the brighter aspect of the relations of man and animals. The indisposition of the Indian native to wanton cruelty has its effect in the remarkable tameness of the various creatures. Even the too often ill-treated domestic animals are as tame or tamer than in England, while the confidence of the wild things, and their abundance both in species and individuals, is a perfect revelation when one comes out to the East. The crow, kite, and sparrow are indeed rather too tame; the thefts of the former two are annoying at times, though they have their amusing side; and the habit of the last of frequenting one's meal-table cannot be regarded as one to be encouraged in a country where infectious disease is so common. It is not to be desired that a sparrow, which has just come from a gutter outside a native hut where they

Ornithological and Other Oddities

have a case of cholera, should, within the next five minutes, be gnawing at the loaf or prospecting the sugar-basin in one's own quarters. But to the familiarity of the pretty little striped squirrels, and of the many charming birds which adorn every Indian garden, there is no drawback. Every garden bird in India is as tame as the robin over here; even the kingfisher, hunted to death in Europe, will in India ply his calling fearlessly before one's eyes, within a few yards, and you may find him wherever there is a large pond.

No native boy throws stones at the wild things; and though a certain number of birds are captured for caging, they are better kept, as a rule, than in Europe, and, for some reason or other, do not resent captivity so much, as any one may see in those imported into this country. Moreover, the catching for cages which goes on is not considerable enough to affect the numbers of birds to be seen at large. It is otherwise, I believe, in those parts of India where birds are caught for skins, and Lord Curzon's valuable enactment against the export of feathers ought to do much good in this direction. A statement has been made that the birds caught were destructive ones, but this is absolutely false. Only one species commonly killed for its skin was a pest, the common green ring-necked parrakeet (*Palæornis torquatus*); and there is no justifica-

The Treatment of Animals in India

tion for encouraging the natives in a practice which, when not encouraged by the demands of our fashions, they would never adopt, whatever their faults in the treatment of animals may be.

PARK ANIMALS FOR LONDON

ALTHOUGH the idea of a municipal Zoo has fallen through, there is no reason why the free creatures of our public parks, whether in London or elsewhere, should not be artificially increased in number and variety. The recent agitation against the too prolific city pigeon suggests that certain natural enemies of this bird, and also of the sparrow, might well be invited to take up their residence among us. In this way the columbine and passerine population might be kept down to a working average without the shock to our humanity which would be caused by organised and periodical slaughters of these innocents which feed on the crumbs from our table.

Of the hawk tribe, one naturally thinks of the peregrine falcon—"the dove-killing hawk, swiftest and strongest of flying things," as Homer calls it—as the pigeon's natural enemy, and so, indeed, it is. • But if peregrines were turned loose in London they would certainly not discriminate between the emancipated pigeon of the streets and the cherished homers and tumblers of private fanciers; so that we must look to a bird which

Park Animals for London

would leave adult pigeons alone, and confine his attention to any squabs which he might find in accessible places.

Hence we might well invite our ancient resident, the kite, back to his old haunts. Some four centuries ago kites were so common in London that they attracted the attention of foreign visitors, and seem to have been as tame and impudent as they are now in the East.

The British kite, however, though just as fine a performer on the wing as the Indian and Egyptian birds, is far handsomer, being larger in size, and with a rich chestnut tint in his plumage which is quite lacking from the snuffy feathering of the Oriental species.

The British race of kites appears now to be reduced to about three pairs, which are being somewhat tardily and ineffectually protected by our ornithologists; but as the species is not rare on the Continent, and is easy to rear and keep at liberty, a few pairs could be installed in the parks with no great trouble and at a very moderate expense, and would before long provide for themselves without difficulty.

Useful allies of the kites—and, in respect of the sparrows, far more effectual—would be some of the smaller birds of the crow tribe. The two or three magpies we have already are great ornaments; and as the magpie in Norway is a familiar

Ornithological and Other Oddities

town bird, there is no reason why this very beautiful creature, which the game-preserver will not allow to live in the country, should not be allowed to delight our eyes in town, and harry the nests with which Philip Sparrow decorates the trees to his heart's content ; to say nothing of appropriating the results of the town pigeon's undue philoprogenitiveness.

The even more beautiful and equally persecuted jay might also be tried, and would have the same recommendations ; but as it is more of a woodlander than the magpie, it might not be so much inclined to venture among the houses. However, considering the progress which the wood-pigeon has made of late years in this direction, it is quite probable that the jay, a far more intelligent bird, would be equally ready to profit by man's friendship, and frequent buildings as well as trees.

The jackdaw, of course, is a haunter of buildings already, but as he has not the beauty of the magpie and jay, it would be hardly worth while to try him unless these proved impracticable as citizens ; his qualities in such a case would be much the same as theirs, and he would be undoubtedly easier to establish.

In fact, the jackdaw might, like the pigeon, become too numerous, as a bird which builds on houses is harder to keep under control than one

Park Animals for London

which nests in trees, since a tree-nest can easily be pulled or poked down or fired into.

The introduction of the chough, which with its ebony plumage and vermilion legs and bill rivals the magpie and jay in beauty, would be most desirable. It is known that this bird can be allowed liberty about a country house, but it is unfortunately scarce and expensive. This is a great pity; the bird is beautiful in flight as well as in colour, being altogether a sort of refined edition of the jackdaw, and as it is a cliff-frequenter, would probably readily accept buildings as a substitute for its native rocks.

But until wealthy ornithologists begin to show the same interest in watching the beauty and interesting habits of rare birds that they do in the acquisition of their skins and eggs, I fear we shall have to wait for choughs in London.

The reason why I think that the London sparrow, as well as the pigeon, needs the restraining influence of such enemies as I have suggested is, that he is an irreclaimable hooligan, and is on this account a worse enemy to all small birds weaker than himself than are the actually predaceous species.

But it is not only in the case of birds that the London parks might advantageously increase their animal population.

Every one who has been in India must have

Ornithological and Other Oddities

watched with pleasure the antics of the pretty little striped squirrels, which are almost tame, running about on verandahs, and sometimes even entering the rooms. In some American parks also the native grey squirrel has become practically domesticated, and begs nuts and biscuits from the passers-by.

Now we have in our European red squirrel an even prettier animal than either of these, and one which could not fail to gain popularity were it introduced as a park denizen; while, as it is known to rob birds' nests, it would also help to keep the sparrow in his place.

Its own undue increase would be prevented by the all too numerous cats, which are deadly enemies to young squirrels.

The American grey kind might also be tried, for it is a hardy animal, and would make a pretty variety, to say nothing of the fact that it has proved its adaptability to town life in its own home. Moreover, it sometimes happens that a foreign animal will withstand unnatural conditions—such as those of our parks must always be to some extent—better than a native species.

Few of our British water-fowl do so well in London as the Australian black swan and the Egyptian goose, coming although these do from such utterly different climates.

There is nothing prettier in the shape of

Park Animals for London

mammals than the squirrels, but rabbits also are very amusing and attractive, and although bounds would necessarily have to be set to their ramblings, there are surely several places where a good imitation of a natural rabbit warren—not a mere small enclosure as in Hyde Park—could be arranged, and probably a few hares would also thrive.

We must continue to look to the more in-offensive rodents if we want to diversify our London parks with mammalian life other than that of the scarcely harmless and often unnecessary cat.

MONKEYS I HAVE MET

ALTHOUGH their simulation of ourselves in feature and some habits has never been an appreciated form of flattery, "our poor relations" have interest for most people, and I personally welcome gladly the opportunities which a residence in the East has given me for enlarging my acquaintance with monkeys. The common monkey of India is, of course, the species known in Hindustani as *Bunder*, and to naturalists as *Macacus rhesus*, and it is also the most familiar in England, since the organ-grinder's companion and slave usually, at all events, belongs to this species. About Calcutta, however, I never saw this monkey in a truly wild state, but a few specimens which had escaped were occasionally to be seen, and I well remember seeing some feeding in a way which considerably enlightened me as to the powers for mischief among crops which the tribe possess. The food in this case was the blossoms of a flowering tree, and instead of picking them in a reasonable way the little wretches slid down the boughs and deliberately broke off twigs a foot long or more, throwing these away after picking off a few flowers. Up

Monkeys I Have Met

country I occasionally had glimpses of monkey family life. Paterfamilias would be seen heading the family party, and occasionally rising on his hind legs to secure a better view; his wives followed dutifully behind with their children, and I have seen a young monkey helping himself along by a hold taken on his mother's tail. In spite of the surly temper of the male monkey when adult, his wives must regard him with real affection, as was exemplified in a little episode at the Calcutta Zoological Gardens, in which I, as a member of the Committee of Management, took part. We had in one of the cages a trio of Bunders, the two females fat and well-liking, but the male a most miserable specimen, gaunt and consumptive-looking, and so discreditable to the collection that I thought he ought to be put out of his misery, and said so to one of the garden officials with whom I was making a tour of inspection. Scarcely, however, were the words out of my mouth before both female monkeys sprang straight at my face, and nothing but the intervening wire saved me from getting bitten. Of course, they could not have understood what I said, but I feel sure their sudden attack was not an accident, and that in some strange way they had divined that I was meditating something against their companion. He, I may mention, was taken away and liberated in

Ornithological and Other Oddities

the open, to give him a chance of recovery by liberty and natural feeding.

Speaking of the *embonpoint* of these devoted wives, I may mention that I have noticed in female monkeys of this species, and this alone, this human tendency to portliness in advancing age. I have seen another female rhesus in Calcutta, which was very obese — a worthy person whom I knew as a private pet for the whole of my eight years' residence in India, and she was elderly for a monkey when I got there. She was a good old creature, and much appreciated a kitten as a pet. I have never seen a stout male monkey, and I once saw a male rhesus in Calcutta which was known to be nearly twenty years of age. He was a very large specimen, but his proportions were perfect, and he was quite a monkey Adonis, being of the golden-haired variety.

These golden-haired Bunders are, of course, rare, and have quite a distinguished appearance. Their faces and hands are as clear a flesh-colour as a blonde human being's, and their fur is of a golden-buff tint. They evidently represent an approach to albinism, but their eyes are not pink, and they seem strong healthy animals. Two young specimens of the variety at the London Zoo some time ago were full of fun and frolic, and seemed, if anything, rather superior

Monkeys I Have Met

to the ordinary brown muddy-complexioned representatives of the species. Yet there must be some reason why these blonde monkeys do not increase in the wild state. Perhaps the colour is not hereditary, or, more possibly, there is some inherent delicacy of constitution which is adverse to them in the conditions of wild life. It certainly seems to be the case that the blonde type of humanity is less resistant to certain influences than the dark.

Young rhesus monkeys are captured in numbers for the European market by the simple expedient of placing some food under a basket propped up by a peg to which a string is attached; but, of course, old specimens are not to be so easily made a prey of.

We had a female Bunder with her baby in the Calcutta Zoo in my time, which were a constant source of amusement; but I have never had such a good opportunity of studying monkey maternity as has been afforded recently by the birth of a young one in January 1906 at our Zoo, the parents being of a species closely allied to *Macacus rhesus*, the Japanese monkey (*Macacus speciosus*). Young monkeys are not infrequently born in captivity, but at the Zoo they are usually secluded for a time in the monkey-house. But this Japanese pair, being hardy animals, have always lived outdoors, at

Ornithological and Other Oddities .

first in one of the large hutches outside the monkey-house, and latterly in one of the compartments of what formerly used to be the crows' cages, near the Western Aviary.

The Japanese monkeys are thick-coated, rubicund, comfortable-looking beings, with curious short tails like a docked terrier's, but the baby, which was about the size of a big rat at its birth, looked very different, with its pale wizened face and scanty coat, much darker than that of its parents. For about a week it was an infant in arms, but a most difficult one to nurse. For a time it would cling quietly to its mother's fur, encircled by one of her arms; but before long it was certain to begin squirming about, its contortions ending in its being upside down and grasping the shaggy eyebrows of its parent with its hind legs, when the old lady would grab it by the leg and re-arrange it, so to speak, only to have the same trouble over again.

Soon it began to venture away from her, crawling along the floor of the cage and even feebly clambering up the netting. But it never got far in these excursions, for it appeared to be a fixed principle with mamma never to let it out of sight or out of reach. If the baby got round behind her, or was straying too far off—especially if it was the object of attention to the public or the monkeys in the adjoining compart-



—L. Davis

GIANT APES

—L. Davis

"They can be tamed, that is the question."

Monkeys I Have Met

ments—out went her hand and the child was unceremoniously hauled back by a hind leg or by its ridiculous little tail, which was just long enough to serve as a convenient handle. But after a little cuddling it was sure to start exploring again, and I have never seen it chastised for so doing, though a member of the same genus, the long-tailed macaque (*Macacus cynomolgus*) has been seen, in the wild state, smartly to correct its offspring for being too venturesome.

This extreme caution in keeping the young close at hand is no doubt necessary among wild monkeys, for the little thing would be a highly acceptable prey to carnivora, both furred and feathered; the latter are, I suspect, far the most dangerous foes, for a fox or wild cat, which had snapped up a young monkey, would still have to get away with its prey from the infuriated parents (as quick to spring and almost as formidable biters as the captor itself), whereas with a bird the hapless infant would be whirled aloft beyond reach of parental aid or retaliation. It is in assisting to guard his child against supposed danger that the male Japanese monkey has shown the only sign of parental interest in his offspring; otherwise he has practically ignored it, and has never dreamt of offering his mate any of the delicacies freely supplied the couple by the public—and no monkeys have ever en-

Ornithological and Other Oddities

joyed so large a share of popularity and its profits.

After a week or so of the close supervision above alluded to, the mother's extreme watchfulness began to relax, and the little Jap could run and climb where it liked, though it was often snatched up when anything occurred to upset its decidedly fidgety mother. One day I simply returned a grimace she had made at me for trying to touch the baby with my finger, and the way in which she then tucked it under her arm and carried it well away from the bars was delightfully human. Soon after it was allowed to run at large it began to try to eat, but I have never seen the mother give it any of the food offered her; indeed, she took for herself food given to it, and evidently young monkeys, like the youthful Spartans of old, are expected to steal their rations.

The bringing-up of our present subject has been Spartan enough in some ways, for its mother let it stay outside and play during any weather, however cold and wet; though I have seen her help it inside when it wanted to come indoors, first grabbing one little hand, as it came groping up the step after an ineffectual attempt to climb, and then taking a second hold of the hair of her offspring's head. Her methods certainly gave one some new ideas as to the possibilities of



Monkeys I Have Met

holding babies. Her attention to its toilet has throughout been most assiduous, and the child altogether seemed to want so much care that I very much doubt if a wild monkey could succeed in rearing twins, which are fortunately very rare among them.

To proceed to monkeys of a higher grade. It has never been my good fortune to see any of the anthropoid apes wild, but I have had considerable acquaintance with some of them in the East under more favourable conditions than are possible here. I am thinking especially of a specimen of the hoolock (*Hylobates hoolock*), one of the long-armed apes or gibbons, which was for some years at liberty in the Calcutta Zoo in my time. This beast was a black specimen (a male), and looked very like a little man in a fur coat as he ran along the ground, when he had to travel across a space where it was impossible to swing from tree to tree. It is a curious fact that these gibbons, which are supposed to approach the lower monkeys more nearly than other anthropoids, should have this peculiarly human gait, for they always go on their hind legs on the rare occasions when they visit the ground. Gibbons are generally nice animals, and this one was for a long time no exception. Of course, he found a good deal of his food himself, but rations were daily issued to him at the entrance-lodge, for

Ornithological and Other Oddities

which he duly called, and he also hung about the refreshment-bar in hopes of donations from visitors. He got his drink in quite a natural way, by sliding down a bough overhanging a pond, and dipping it up with his hand. In some indoor monkey-houses two female gibbons were confined, and he used to pay visits to both of them, and exchange confidences through the bars. I do not know if the worry of this double ménage affected his temper, but ultimately he became vicious, and had to be permanently shut up. He had undergone a short term of confinement some time before for a rather peculiar offence. He was wont to extend his rambles outside the gardens, finding the telegraph-wires a very convenient road, and he went on one occasion to Belvedere, the Lieutenant-Governor's residence, and tore down the British flag. However, confinement apparently made him reconsider these seditious ideas, and he never repeated the offence when subsequently released.

An anthropoid frequently imported to Calcutta was the orang-utan, and this animal has always attracted my attention, as it is the most human in some ways of all the great apes. Its figure certainly falls lamentably short of our ideas of beauty—the gorilla is quite elegant by comparison—but there is something almost painfully human about the creature's face, and the variety of expressions



ORANGUTAN
Age 1, male, October 1909



Monkeys I Have Met

it may assume is well shown by the photographs illustrating this chapter. All but that in which the animal is scratching its head were taken from one specimen, "Peter," a former denizen of the London Zoo, and he was not posed in any way. The orang is well known to the natives of Bengal as a showman's animal, and is called "bun manus" (jungle man), just the signification of its Malay name. And as Hanno the Carthaginian called the gorillas he discovered hairy people, hundreds of years ago, so the Indian native appears to doubt whether the orang is not human; at any rate, I have been asked in the Calcutta Zoo by a native whether an orang on view there was not a man.

As a testimony to the value of fresh air for animals, I may mention that we did not succeed in getting orangs to thrive in this garden until an outdoor extension was added to their cage. The strange wistful look of the orang's face is borne out by its character. It is less merry and monkeyish than the chimpanzee, and more emotional and exacting; disappointed, it will throw itself on the ground and roll about crying, like a spoilt child. It is also more sluggish than its African relative, and hence more difficult to keep in health, but I should not be surprised if it turned out under careful training to be the superior animal. Two varieties of the orang used to be imported to Calcutta, one with a much

Ornithological and Other Oddities

more bare and dusky-coloured skin than the other; but as all the specimens I saw there were immature, I was not able to determine what the differences were in adults.

I have read somewhere a statement that the anthropoid apes prefer our company to that of their fellow-monkeys of lower degree, and I saw it proved once in Calcutta. The late Mr. W. Rutledge, for many years the leading animal dealer there, and a mine of natural history information, had a young one in his yard, and, at my request, opened its cage one day to let it choose its society, when, quite disregarding the other monkeys, it immediately came over to him and climbed into his lap. A fair-sized female we had at the Calcutta Zoo, also, was a most affectionate creature. When I paid a visit to her, she would always put her arm affectionately round my neck, and, while being caressed and played with, would drop any food offered by other visitors. Another specimen of the same sex showed the less amiable side of its character by long refusing the donations of one member of the society, because on one occasion he had first given something to other monkeys in the same house. But I think it was on my very first introduction to the orang that the hidden humanity of the creature most impressed me. This was many years ago, when Mr. Abraham

Monkeys I Have Met

Bartlett was at the London Zoo, and he gave me a private interview with a little orang which had just arrived. The first thing the little imp did was to climb on my knee, take off my hat, and put it on its own head, after which it proceeded gravely to pinch one of the superintendent's eyelids. In short, it examined us with a scientific curiosity, which, in a lower animal, was decidedly impressive. This little man of the woods could not have chosen a more striking way of claiming a kinship so often denied.

INDEX

(An asterisk denotes that an illustration is given)

A

- ACCLIMATISATION of goldfinch,
70-76; unsuccessful attempts,
174-177
Adjutant, 184
*American bittern, 161, 162
— quail, 176
— robin, 102, 103
Amherst pheasant, 8, 11, 16, 17
Apteryx, 52
Argus pheasant, 46
Athens, owls in, 136
Audubon, quoted, 10
Auks, absent from Indian seas,
184
Avadavat, experiments with, 4;
in India, 100
Aviaries, inmates for, 223-228
Aviculture, Japanese, 186-193;
in London, 223-228, 270-
273

B

- BABLERS, 36, 38, 39, 40, 201
Baboon, habits of tame, 244
Bantams, preferences of hens,
3; hybrid with grouse, 18;
*Japanese, 186, 187
Bee-eaters, riding on storks,
200
Bees, legend about generation
of, 252 253
Bengalee, 191, 192

- Besra, 37
*Bhimraj, 115, 116
Bitterns, American and Euro-
pean, 161
Blackbird, its tameness in Lon-
don, 129; solitary habits,
199
Blackcock, hybrid with caper
cailzie and red grouse, 13
Blood-pheasant, 180
Blue-bird, American, 103, 104
Blushing in birds, 217-222
Bob-white, 176
Bonhote, Mr. J. L., breeding of
duck hybrids by, 20
Booby, 236, 237
*Brain-fever bird, 36, 57, 58
Budgerigar, attempt to acclima-
tise, 175; in aviaries, 223,
224
Buffalo, 263
Bulbuls, 39, 40; Bengal and
red-whiskered, 98
Bullocks, ill-treated in India,
262
Bunder (rhesus monkey), 276-
279
Bustards, Indian, 181
Butterflies, offered to Hornbill,
49

C

- CANARY, mated to British

T

Index

finches, 15, 31, 32 ; its variations, 65 ; African, 241
 Capercaillie, hybrid with black-cock, 13 ; with pheasant, 18
 *Caracara, 85-91 ; blushing, 220 ; teasing eagle, 221
 Carancho, *see* Caracara
 Carolina duck, 8, 11 ; affection for its mate, 26
 Cassowary, as a fighter, 152
 Cat, and mongoose, 242 ; in India, 264 ; in London, 274
 Cattle, Indian, their characteristics, 293
 Cheer pheasant, 179
 Chough, introduction into London suggested, 273
 Chuck-will's-widow, 170
 Cockatiel, waterproof plumage of, 44
 Cockatoo, great black, 221, 222
 Condor, experimented with by Darwin, 51
 Coot, its company liked by other birds, 203, 216
 Coppersmith-barbet, 74
 Cormorant, small Indian, habits of, 141, 145 ; fresh-water birds in India, 185
 Corncrake, complete moult of, 80
 *Cotton-teak, moult of, 79 ; in India, 183
 Cranes, claws of, 153 ; as pests in India, 182 ; Manchurian, 192
 Crocodile, Herodotus' account, 255, 256
 Crows, jungle, 34, 84 ; white-eyed, 84 ; not attacked by hawks, 85

Crows, Indian house, 34, 69, 88, 165 ; sociable over food, 202
 Crow-pheasant, 67, 68, 154-157
 Cuckoo, common, 33, 40 ; black Indian, 33-36 ; hawk, 36, 37, 58, 67 ; pied crested, 38 ; plaintive, 39 ; *fork-tailed, 57 ; ground, 58, 67, 154

D

DABCHICK, Indian, its habits, 206-216 ; in London, 126, 127
 Darter, 141, 145, 185
 Darwin, on sexual selection, 1, 7 ; experiment with condor, 51 ; on mimicry, 61 ; vampire-bat identified by, 260
 Dhyal, 98, 106, 205
Dinomys, 251, 252
 Divers, absent from Indian seas, 184
 Dogs, pariah, 246, 265
 Donkeys, ill-treated in India, 264
 Doves, hybrid, 21, 22, 96 ; in London, 124, 125 ; as pets in Zanzibar, 241
 Drone-fly, 253
 *Drongo, common, or king-crow, 56, 57 ; *racket-tailed or bhimraj, 115, 116
 Ducks, common, their mating, 2 ; courtship, 10 ; hybrid with pintail, 20 ; mandarin, courtship, 8 ; habits, 24-26 ; occurrence in India, 183

Index

- Carolina, 8, 26; Indian spotted-billed, 11; whistling tree, 182; pink-headed, 183; Muscovy, oil-gland of, 42; claws of, 153; kept in Zarzibar, 241
- E
- EAGLE, Indian sea, 143, 233; Imperial, teased by caracara, 221
- *Egret, large, captured by caracaras, 86; farming for "osprey" plumes, 117, 122; cattle-, mistaken for ibis, 256
- Emu, 52
- Experiments on sexual selection, 3-6; Dr. Hill's on scent in turkeys, 48; M. Rogeron's with jackdaw, 49, 50; Darwin's with condor, 51; in acclimatisation, 174, 177
- F
- FALCON, peregrine, 85
- Flying-foxes, 260
- snakes, 257
- fish, 237
- Fowls, sexual selection in, 3; variation in, 65; Japanese, 186-190; Dumpies and Courtes Pattes, 187; Malay, in Zanzibar, 187, 241; treatment in India, 265
- *Friar-birds, 54-56, 65, 66
- G
- GADWALL, hybrids with other ducks, 20
- Gannet, 230
- Garganey, affection of drake for Mandarin ducks, 30; abundance in India, 182
- Geese, attachments between different species of, 29; as pests in India, 182; Egyptian, hybridising with ruddy sheldrake, 18, 19; magpie, peculiarities of, 77; pigmy, 77
- Gibbon, habits of tame, 283, 284
- Goats, in India, 265
- Goldfinch, courtship of, 31; acclimatise abroad, 70-76
- *Gold pheasant, hybrid with Amherst, 17; with common pheasant, 17; in courtship, 27, 28; moulting, 77; in Japan, 192; management of, 226, 227; ? phoenix, 259
- Gorilla, discovered by Hanno, 285
- Grouse, frequency of hybrid among, 13; red, hybrid with blackcock, 13; with bantam fowl, 18; sand-, 180
- Guan, hybrid with fowl, 18
- Guinea-fowl, method of fighting, 152; terrified by crow-pheasant, 155; wild ones tamed, 247
- Gulls, in London, 127; scarce in eastern seas, 185; black-headed, 127; *herring, 127, 128, 234; yellow-legged herring, 234, 235; brown-headed, 185; lesser black-backed, 234, 235; Hemprich's, 236

Index

H

- HANNO, discoverer of gorillas, 285
 Harrier, powder-downs in, 43 ; marsh-, teasing night-herons, 144
 *Hawk-cuckoo, 36, 37, 58, 67
 Hawks, 55, 56
 Herodotus as zoologist, 253-261
 Herons, serrated claw in, 44 ; powder-downs in, 46 ; pond, 139, 184 ; night, 140, 144
 *Herring-gull, common, 127, 128, 234 ; yellow-legged, 234, 235
 Hoatzin, quadrupedal young of, 150
 Hoolock, 283
 Hoopoe, odour of, 42
 Hornbill, concave-casqued, 42 ; pied, discrimination of, 49 ; moult of, 80
 Horses, how treated in India, 264 ; supposed anciently to generate wasps, 252
 Hudson, Mr. W. H., quoted, 86
 Hybrid birds, 13-22 ; wild, 13, 14 ; fertility and sterility of, 15, 16, 19-22 ; double, 17, 22 ; between remote species, 18 ; in grouse, 13 ; ducks, 14, 19, 20 ; parakeets, 21 ; pigeons, 22

- *IBIS, Herodotean account, 256, 257
 *Impeyan pheasant, 179

J

- JACANA, pheasant-tailed, 148, 183, 184 ; bronze-winged, 149
 Jackals, in India, 265
 Jackdaw, experiment with, 49, 50 ; for London, 272
 Jack-rook, 89
 *Japanese bantams, 186, 187 ; long-tailed fowls, 188-190 ; *pea-fowl, 192 ; *monkeys, 279-282
 Java sparrow, in Zanzibar, 92 ; in Calcutta, 93 ; in Java, 94 ; domesticated in Japan, 190, 191 ; for London aviaries, 225
 *Javan (or Burmese) peafowl, 178, 179, 192
 Jay, 272
 Jay-thrush, white-crested, 201
 *Jungle-fowl, red, moult of, 81 ; as a fighter, 151 ; common in India, 179 ; *grey, 179 ; Ceylon, 179 ; green, 219, 220

K

- KALEEGE, 151, 179
 *King-crow, 56, 57
 Kingfisher, in London, 129 ; in India, 268 ; Australian laughing, 106
 Kite, bullied by drongo, 56 ; resemblance of eagle to, 60, 69 ; at Dhappa, 232 ; in India generally, 265, 267
 *Koel, or black cuckoo, 33-36
 Koklass pheasant, 179

L

- LANDRAIL, moult of, 80
 Lapwing, 199 ; South American, 86

Index

- *Lark, hawked when moulting, 77
- Leeches, in mouth of crocodile, 256
- Lepidosiren, 249
- Linnet, sexual selection in, 5 ; mated to canary, 32
- Liothrix, or Pekin robin, 99, 107-109, 174, 176, 177, 193

M

- MACAQUE monkey, 281
- Macaws, talking, 111 ; fighting, 147 ; blushing, 222
- Magpie, 271, 272 ; *Australian, 115
- Magpie-goose, 79 : -robin, 64, 106 ; tanager, 64
- *Mandarin duck, 8, 24-26, 183
- Mannikins, 94, 100
- Milvago, Forster's, 89
- Mimicry, in appearance, 54-69 ; vocal, 110-116
- *Monaul, 179
- Mongoose, banded, 241-244 ; another species, 245
- Monkey, rhesus, 276-279 ; *Japanese, 279-282 ; macaque, 281
- *Morepork, mopehawk, mopoke, 46, 171, 172
- Moseley, Professor, quoted, 6
- Moult of birds, 77-83
- Muscovy duck, 42, 153, 241
- *Mynah, hill-, 100, 113-114 ; *house-, 100, 101, 114

N

- NEW ZEALAND, acclimatisation of birds in, 70, 75, 134 ; *robin, 105

- Nighthawk, 45
- Night-jars, 167-172 ; common, 167-169 ; Indian, 170 ; Brazilian, 170
- *Nignt-herons, colony of, in Calcutta, 140-144

O

- *ORANG-UTAN, 284-287
- *Orioles, mimetic species, 54-56 ; golden, 65, 66, 251 ; green, 65 ; *false or American, 63
- Osprey, 117 ; " Osprey " plumes not from this bird, 117
- Oven-bird, 64
- Owls, bay, 45 ; *Pel's fish- and *milkyeagle-, 130-132 ; *barn-, 45, 133, 134 ; Ural, scops, 135 ; little, Indian little, 136-138 ; *winking, 133

P

- PACA, 251
- Paddy-bird, 139, 140, 184
- Painted snipe, 183
- Pariah dogs, in Africa, 246 ; in India, 265
- Park animals, suggested, 270-275
- Parrakeets, hybrid, Rosella, Pennant's, red-mantled, 21 ; ring-, plum-headed, 97 ; grass-, 175, 223
- Parrots, 42, 44 ; flight of, 97 ; rock-, 97 ; talking, 110, 111 ; grey, 110, 242
- Parson-bird, 112
- Partridge, common, 80 ; Indian, 180

Index

Peafowl, hybrid with guinea-fowl, 18; display of, 28; moulting, 78; in India, 178;
 *Japan, or black-winged, 29, 192; *green (Burmese and Javanese), 29, 178, 192
 Pekin robin, 99, 107-109, 174, 176, 177, 193
 *Penguin, manner of moulting, 79, 80
 Petrels, rare in Indian seas, 184; storm-, 239
 Pheasant, gold, display, 8, 27, 28; bred in Japan, 192; moulting, 77; Amherst, display, 8; hybrid, 16, 17, 18; silver, 18, 192; Indian species, 179; Argus, 46
 Phoenix, 250, 251, 259
 Pig, friendly with baboon, 244
 Pigeons, hybrid, 21, 22; common, display of, 23; in London, 123, 124
 *Pigmy goose, 77
 *Piping-crow, 115
 Pitoitoti, 105

Q

QUAILS, 180, 267

R

RAILS, 80
 Rakkelhane, 13
 Rattlesnake, 11
 Raven, 84, 88, 90, 91
 Redwing, in London, 129
 Rhea, 88
 Robin, 102; American, 102, 103; *New Zealand, 105; Australian, 105, 106; Indian,

106, 107; Pekin, 99, 107-109, 174, 176, 177, 193
 Rogeron, M. G., quoted, 20, 30, 49
 *Rook, 88; jack-, name of a carrion hawk, 89
 Rosy-billed duck, 82
 Ruddy sheldrake, 18, 19
 Ruff, 9, 146

S

*SANDGROUSE, 180
 Sandpipers, 183, 184, 266
 *Screamer, 149, 150
 *Serval, 245-248
 Shama, 99
 Shearwaters, 239, 240
 Sheep, in India, 265
 Sheldrake, ruddy, 18, 19
 *Shikra, mimicked by hawk-cuckoo, 36, 58
 Shrikes, 59, 164
 *Skuas, 62
 Skunk, attacked by caracara, 90
 Snake-bird, 141, 145, 185
 Snipe in India, 183, 266
 Sparrow, courtship of, 12, 30; in London, 128, 272; in India, 99, 267; Java, 92, 147, 190, 225
 Spurs, wing-, 148-150; leg-, 150, 151
 Spur-winged goose, 148; plovers, 148
 Squirrels, Indian, 268, 274; grey, red, 274
 Starling, 177, 199; Andaman, 64; Indian, 100

Index

SHOWAWAYS, birds as, 161-166
 Storks, ridden on by bee-eaters,
 200; in India, 184, 207
 Swan, 79, 183; black, 274

T

TEAL, *cotton-, falcated, 183
 Tern, sooty, 237
 Thrush, in London, 128, 129;
 missel-, 129; jay-, 201
 Tit, great, 194-198; sultan-, 197
 Towhee, 63
 *Tragopans, 179
 Tree-ducks, 181
 Tropic-bird, 238, 239
 Tui, 112
 Turkey, display of, 218

U

UPLAND GOOSE, 182
 Urutau, 170, 171

VAMPIRE-BAT, identified by
 Darwin, 260
 Vipers, 11
 Vultures, 229, 232

W

WASPS, supposed to originate
 from dead horses, 252
 Water-pheasant, 183, 184
 Weaver-birds, 92, 93, 100, 225,
 226
 Weka, 82
 Whip-poor-will, 180
 White-crested jay-thrush, 201
 Wideawake, 237
 Woodcock, 169, 183
 Woodpecker, 129
 Wood-pigeon, hybrid with com-
 mon pigeon, 22; in London,
 123, 124, 272

THE END

